Breast Cancer Screening Behavior

in Korean Immigrant Women in the United States

A DISSERATION
SUBMITTED TO THE FACULTY
OF UNIVERSITY OF MINNESOTA BY

Mi Hwa Lee

IN PARTIAL FULFILLMENT OF THE REQUIREMENTS
FOR THE DEGREE OF
DOCTOR OF PHILOSOPHY

Dr. Hee Yun Lee

June 2017

Acknowledgements

There are many people who I owe a sincere thank you for their support, wisdom, and guidance. Their love, support, and encouragement gave me strength to complete my dissertation.

I would like to thank my parents and siblings for their endless support, love, encouragement, and caring hearts. You helped me fulfill my dreams and walked with me through my entire journey. I love you all very much.

I also would like to thank my committee members. To my advisor, Dr. Hee Yun Lee, I truly appreciated your support, encouragement, and guidance for many years. You've help motivate me to have courage and strength to survive this long and tough journey. Thank you for your mentorship. A special thanks to Dr. Wendy Haight for your guidance as a qualitative researcher and for providing your insights on a mixed methods approach. I also would like to thank Dr. Joseph Merighi for your support, ideas, and feedback on this project which I greatly appreciate. Thanks to Dr. DeAnn Lazovich for your valuable insights on this dissertation.

Thank you to the American Cancer Society for their kindness and support by providing me with a grant award, American Cancer Society Doctoral Training Grants in Oncology Social Work DSW16-069-01-SW. This financial support provided me the opportunity to successfully collect my data for this project, as well as provided incredible mentorships from oncology social work researchers who are very inspiring.

Special thanks to Alex and Clara for your support and efforts in connecting me to the Korean American immigrant community in Los Angeles, California. This study would not have been possible without your continued support.

Very special thanks to Dr. Ronald Rooney for your unwavering support, and mentorship. Thanks to a support group of colleagues for your cheering and motivational encouragement. Thanks to Dr. Kristine Piescher and Dr.Traci LaLiberte for your care and guidance.

Special thanks to my friends back in Korea and the United States for sharing their joy, knowledges, and support. Especially, Sooyeon for your persistence in helping me with my quantitative data analysis and Minhae for your support and assistance in reviewing my work. Lastly, thanks to dear my friend, Shoua, for being a good friend and helping me with editing.

Dedication

This dissertation is dedicated to my parents, Korean American immigrant women, and the women who participated in this study.

Abstract

To address the problem of the underutilization of breast cancer screening in Korean immigrant women in the United States, this study investigates their screening behavior, with a particular emphasis on sociocultural aspects. Breast cancer is the most commonly diagnosed cancer in Korean immigrant women. A regular breast cancer screening is recommended for early detection and timely treatments for breast cancer (Elmore, Armstrong, Lehman, & Fletcher, 2005). Despite its effectiveness of screening, Korean immigrant women are reported to have lower breast cancer screening rates than any other racial/ethnic groups (Lee, Fogg, & Menon, 2008; Lee, Ju, Vang, & Lundquist, 2010). This implies that Korean immigrant women are at risk for being diagnosed with breast cancer at an advanced stage due to their low mammogram receipt resulting in increased mortality.

This study uses a cross-sectional, mixed-method study design, in particular a sequential explanatory mixed methods design (Creswell, 2015) to understand breast cancer screening behavior in Korean immigrant women. The Andersen's Behavioral Model of Health Services Use (Andersen, 1995) along with Health Belief Model (Rosenstock, 1974; Rosenstock et al., 1988) theoretically guided this study. Logistic regression was used to examine facilitators and barriers associated with breast cancer screening in the quantitative phase of the study. In the qualitative phase of the study, semi-structured individual interviews were conducted to explore sociocultural views on breast cancer and breast cancer screening from Korean immigrant women and to obtain further evidence supporting the results of quantitative study. Grounded theory methods (Charmaz, 2006) guided the data collection and analyzed the data results. A total of 240

Korean immigrant women ages between 40 and 79 years old from Los Angeles, California, completed questionnaires and 30 of these participants participated in individual interviews.

Approximately 90.1% of study participants completed a mammogram at least once in their lifetime and 62.2% had a mammogram in the past two years. In the past two years, women between 60 - 69 years old had the highest mammogram rate (73.3%) while women between 40 - 49 years old had the lowest mammogram rate (26.3%). With regards to associated facilitators and barriers of screening uptake, the quantitative study identified three facilitators (fatalism, regular check-up and heard about mammogram experiences from family, friends, and neighbors) and a barrier (perceived barriers to screening). Study participants viewed breast cancer as a fearful subject. They reported having different levels and concerns about breast cancer (e.g., fear of getting breast cancer vs feeling safe from breast cancer). The majority of participants strongly believed that breast cancer could be preventable. Interestingly, they had different opinions on ways to prevent breast cancer. The qualitative phase of the study also found five motivations (fear of breast cancer, preventive orientation practice, health insurance, doctors' recommendation, and family support) and various challenges (e.g., complicated and timing consuming procedure, and language) to breast cancer screening. Results showed that fears of breast cancer boosted Korean immigrant women to adopt preventive health practices while still holding fatalistic attitudes. Fatalistic attitudes are influenced by participants' own observations of people's death as a result of being diagnosed with cancer while still maintaining healthy lifestyles and regular check-ups. These observations reinforced fatalistic attitudes on health. Despite having this attitude, the

participants wanted to maintain their screening because they believed finding cancer at an earlier stage would be better if it turns out they have cancer. They wanted to avoid having feelings of regret or guilt if they had cancer at advanced stages. Health insurance enabled them to initiate or maintain their regular check-ups, and their primary health care professionals played a role in encouraging them to have a screening. Some participants developed their own strategies (e.g., waiting for to get government funded health insurance and visiting Korea to receive medical examination) to deal with multiple barriers to breast cancer screening.

The findings of this mixed methods study helps to obtain a more comprehensive view of Korean immigrant women's screening behavior and to develop more culturally and individually tailored intervention strategies to promote screening uptake.

Table of Contents

List of Tables

List of Figures

Chapter One

Introduction

Breast cancer is the most commonly diagnosed cancer among Korean immigrant women in the United States (U.S.). Breast cancer screening is recognized as an effective method for early detection and timely treatment for breast cancer (Elmore, Armstrong, Lehman, & Fletcher, 2005). Despite its benefits, Korean immigrant women are reported to have lower breast cancer screening rates than other ethnic groups (Lee, Fogg, & Menon, 2008; Lee, Ju, Vang, & Lundquist, 2010; Yoo, Le, Vong, Lagman, & Lam, 2011). This implies that Korean immigrant women may be diagnosed with breast cancer at an advanced stage compared to other American women due to their low screening participation, which results in increased mortality. Korean immigrant is the fastest growing population in the U.S. (Hoeffel, Rastogi, Kim, & Hasan, 2012). Thus, it is vitally important to include Korean immigrant women in breast cancer prevention efforts.

In response to the low screening participation of Korean immigrant women, there is an increase in the literature on breast cancer screening behavior and interventions in this population. The majority of the literature has identified facilitators and barriers of screening participation focusing on socio-demographic characteristics (Juon, Choi, Kim, 2000; Juon, Seo, & Kim, 2002; Wismer et al., 1998), access to health care (Han, Williams, & Harrison, 2000; Lew et al., 2003; Maxwell, Bastani, & Warda, 1998), and health beliefs using Health Beliefs Model (Lee, Kim, & Han, 2009; Lee et al., 2015; Lee, Stange, & Ahuwalia, 2015) predominantly using a quantitative approach. To explain the limited screening participation, studies need to identify underexplored factors with screening participation (e.g., knowledge on breast cancer screening, breast cancer

screening experience, and cultural influence). In addition, there is a lack of literature that explores Korean immigrant women's perspectives on breast cancer and breast cancer screening. The identified factors from quantitative studies may have limitations in their ability to describe the complexity and dynamics embedded in these women's screening behavior. This study sought to increase knowledge about breast cancer screening behavior in Korean immigrant women using a mixed methods approach, particularly an explanatory sequential design (Creswell, 2015). Specifically, the quantitative phase of this study was designed to examine facilitators and barriers of breast cancer screening uptake in Korean immigrant women. The qualitative phase of this study was intended to better explain the results from the quantitative phase by providing a more comprehensive and contextual description of Korean immigrant women's views on breast cancer and breast cancer screening.

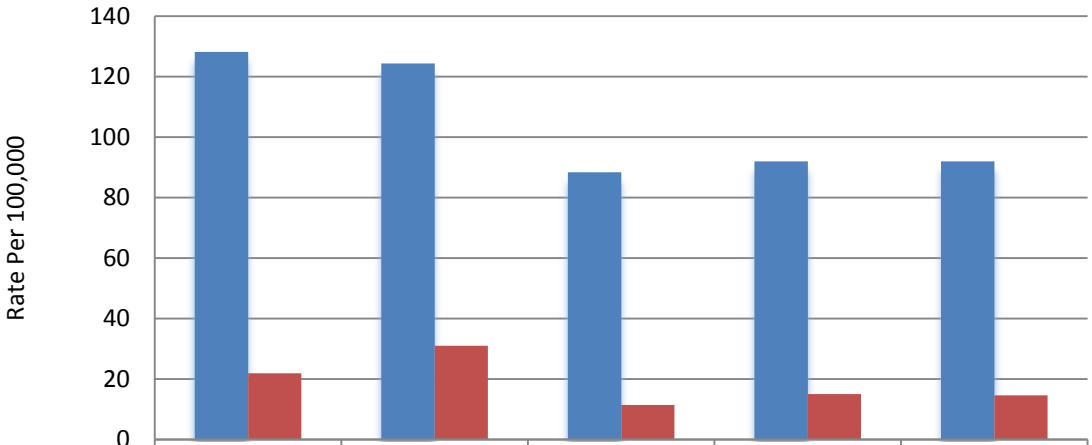
In this study, Korean immigrant women are defined as women who were born and grew up in Korea and then immigrated to the U.S. as an adult. The term, breast cancer screening, is limited to screening mammography (mammogram), and X-ray imaging of the breast, which is recognized as a contributor to early detection of breast cancer.

Problem Statement

Breast cancer is the most common and second most fatal form of cancer among women in the U.S. (Miller, King, Joseph, Richardson, & CDC, 2012; Siegel, Naishadham, & Jemal, 2012). Around 1 in 8 women is diagnosed with breast cancer in this country. In 2013, there were approximately 232,340 new cases of breast cancer and 39,620 breast cancer deaths among U.S. women (DeSantis, Ma, Bryan, & Jamal, 2013). Asian immigrant women in the U.S. are not immune to the threat of breast cancer. Breast

cancer is the most frequently occurring cancer among Asian immigrant women, including specifically Korean immigrant women (Kagawa-Singer & Pourat, 2000; Wu, Bancroft, & Guthrie, 2005).

Asian immigrant women in the U.S. traditionally have a lower breast cancer incidence rate compared to non-Hispanic White and African American women (Jemal et al., 2004; Miller et al., 2008; Miller et al., 2012). As seen in Figure 1, Asian women have the lowest incidence (88.3 per 100,000) and mortality rate (11.4 per 100,000) from breast cancer compared to other racial groups (DeSantis et al., 2015).



	White	Black	Asian	Al/AN	Hispanic
Incidence	128.1	124.3	88.3	91.9	91.9
Mortality	21.9	31	11.4	15	14.5

Figure 1. Breast Cancer Incidence and Mortality Rate by Race/Ethnicity

Notes: US Age Adjusted Surveillance, Epidemiology, and End Results (SEER) Program data (2008-2012). Adapted from Breast Cancer Statistics, 2015 by DeSantis et al., 2015.

However, recent studies reported that the breast cancer incidence rate is increasing among Asian immigrant women while the rate is decreasing in other ethnic groups (American Cancer Society 2013b; Deapen, Liu, Perkins, Bernstein & Ross, 2002).

Between 2006 and 2010, the annual breast cancer incidence rate among Asian immigrant women increased by 21%, while the rate in non-Hispanic White women decreased by 4% (Kim, Chandrasekar, & Lam, 2014). Similarly, the breast cancer incidence rate for Korean immigrant women readily grew. According to the cancer incidence data obtained from 13 Surveillance, Epidemiology, and End Results (SEER) registries, the breast cancer incidence rate had almost doubled from 34.9/100,000 to 69.5/100,000 between 1990 and 2008 (See Figure 2) (Gomez et al., 2013).

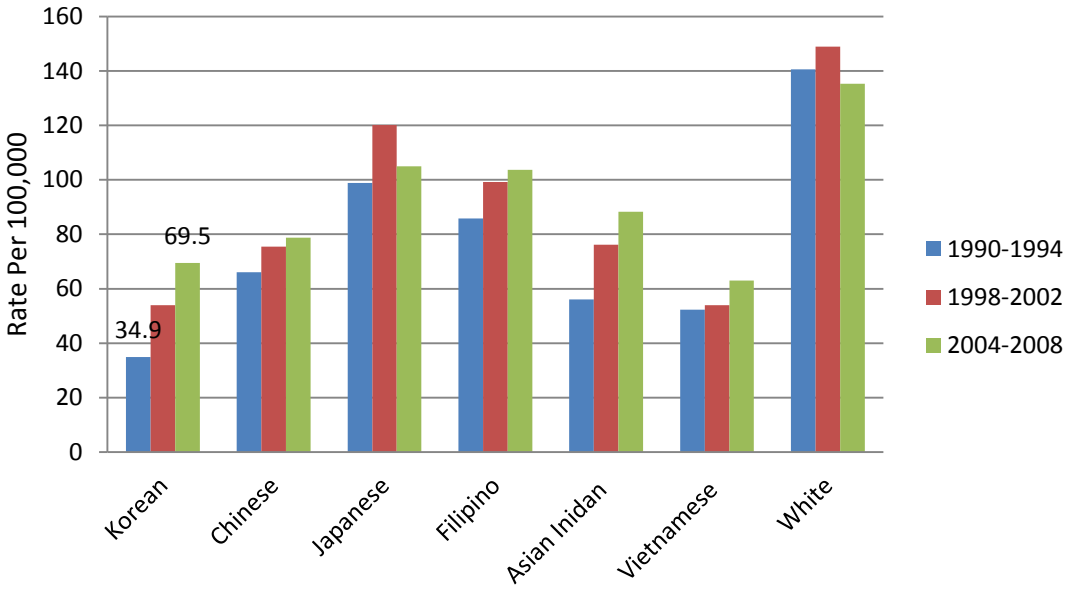


Figure 2. Breast Cancer Incidence Rates among Asian American Women, 1990-2008

Notes: US Age Adjusted, Surveillance, Epidemiology, and End Results (SEER) Program data (1990-2008). Adapted from Cancer Incidence Trends 1990-2008, Gomez et al., 2013

Having a regular breast cancer screening is a widely recommended strategy for timely detection and treatment of breast cancer (Gøtzsche & Olsen, 2000). Early detection has been reported to be critical in breast cancer management because the tumor stage at diagnosis (or tumor size) is strongly associated with survival rate (Elmore et al.,

2005). A meta-analysis of 13 randomized trial studies reported that regular breast cancer screening contributes to a reduction in breast cancer mortality of 20% - 35% in women between the ages of 50 - 69 years old and slightly less in women between the ages of 40 - 49 (Elmore et al., 2005).

A recent study showed that Asian women between ages 50 - 75 years old are highly utilizing breast cancer screening like other racial/ethinc groups in the U.S. (Shoemaker et al., 2016). Asian Americans are not homogeneous. Rather, they are very diverse ethnic groups originating from many different Asian countries. Thus, it is appropriate to look at the screening rates by Asian subgroups. For example, studies among Asian immigrant subgroups found that Korean immigrant women have the lowest breast cancer screening rates (Lee, Fogg, & Menon, 2008; Lee, Ju, Vang, & Lundquist, 2010; Yoo, Le, Vong, Lagman, & Lam, 2011). A study conducted by Lee and colleagues (2010) reported that breast cancer screening rates ranged from 79.5% in Japanese to 57.1% in Korean women from age 40 years and older in the past two years (See Figure 3) (Lee, Ju, Vang, & Lundquist, 2010).

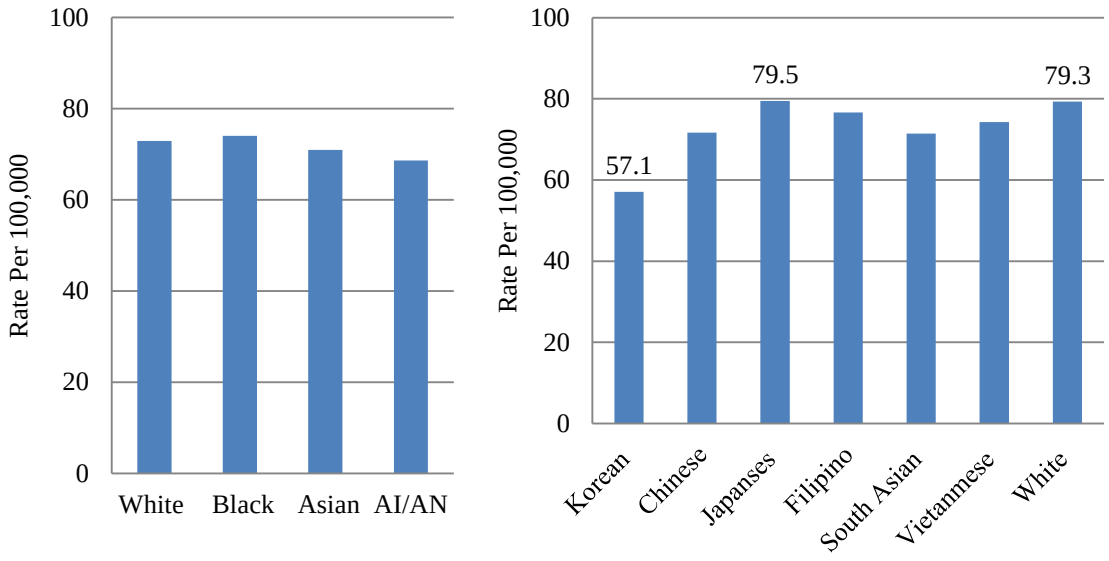


Figure 3. Breast Cancer Screening Rates by Race and Ethnicity, and Breast Cancer Screening Rates in Asian American Subgroups

Notes: National Helath Interview Survey data 2008, 2010, and 2013, adapted from Shoemaker et al., 2016; California Health Interview Survey data, 2001, 2003, and 2005 adopted from Lee et al., 2010, respectively.

Similarly, studies of Korean immigrant women have consistently reported screening rates far below the Healthy People 2020 goal. The Healthy People 2020's goal is to ensure 81% of women between the ages of 50 and older will have had a mammogram in the past two years. In 1998, approximately 47.5% - 49% of Korean immigrant women age 50 years old and older had ever received a mammogram and around 34.2% - 36% had a mammogram in the past two years (Maxwell, Bastani, &Warda, 1998; Wismer et al., 1998). More recent studies examining Korean immigrant women ages 40 years old and older reported that screening rates were still low; approximately 16.3% - 45.3% had received a mammogram in the past two years (Juon, Kim, Shankar, & Han, 2004; Lee, Stange, & Ahluwalia, 2014). Interestingly, their initial screening rate was high; approximately 65.4% - 81.2% Korean immigrant women between the ages of 40 and older had ever had a mammogram (Juon, Kim, Shankar, &

Han, 2004; Lee, Stange, & Ahluwalia, 2014). This may imply high initial screening participation but low maintenance of screening. Further, 22.3% - 25% had never been screened (Lee, Fogg, & Salder, 2006; Lee et al., 2015) while 32.5 % had been regularly screened (Juon, Kim, Shankar, & Han, 2004). Given the above screening rates, it is critical to identify facilitators and barriers associated with screening uptake among Korean immigrant women. It is also important to explore their perspectives on breast cancer and breast cancer screening based on their screening experience (e.g., no experience with mammography, having experience with mammography but not maintaining, and having regular screening experiences) in order to deeply understand their screening behavior.

Purpose of the Study

The purpose of this study aims to understand breast cancer screening behavior in Korean immigrant women using an explanatory sequential mixed methods design. The current study has five aims.

1. To identify Korean immigrant women's attitudes and beliefs about breast cancer and breast cancer screening
2. To describe the rates of breast cancer screening in Korean immigrant women
3. To investigate facilitators and barriers associated with breast cancer screening uptake in Korean immigrant women
4. To capture a more comprehensive and contextual description of Korean immigrant women's views on breast cancer and breast cancer screening
5. To describe Korean immigrant women's motivations and challenges to breast cancer screening

The first three aims will be achieved by the quantitative phase of this study and the rest two aims will be reached by the qualitative phase of the study. The findings of the present study help us to obtain a more comprehensive view of Korean immigrant women's screening behavior and to develop more culturally and individually tailored intervention strategies in order to promote their screening uptake. In addition, findings of the present study provide information that helps promote other types of cancer screening such as cervical cancer in this population. Furthermore, study findings provide insights for future research and community-based health promotion to reduce breast cancer mortality in other Asian immigrant women who share similar barriers and challenges with Korean immigrant women.

Research Questions

The current study addresses the following five questions.

1. What are the Korean immigrant women's attitudes and and beliefs about breast cancer and breast cancer screening?
2. What are the rates of mammography uptake among Korean immigrant women?
3. What are the facilitators and barriers of mammogram use in Korean immigrant women?
4. How Korean immigrant women view breast cancer and breast cancer screening?
5. How do Korean immigrant women describe their motivations and challenges to breast cancer screening?

Chapter Two

Literature Review

This literature review provides an overview as the basis for a general understanding of the Korean immigrant population, the current findings on the effectiveness of breast cancer screening, as well as identified facilitators and barriers of breast cancer screening uptake among Korean immigrant women. This literature review also addresses gaps in the literature and the needs for further study to deeply understand complicated screening behavior in Korean immigrant women.

Korean Immigrants in the U.S.

Korean immigrants are the fifth largest subgroup among Asian and Pacific Islanders in the United States and the population continues to grow. According to the 2010 census, the total Korean population, those who identified themselves as "Korean alone," grew by 33% from 1.09 million in 2000 to 1.46 million in 2010 (Hoeffel, Rastogi, Kim, & Hasan, 2012). The states with the highest estimated Korean immigrant populations included California (452,000), New York (141,000), New Jersey (94,000), and Virginia (71,000). The two metropolitan areas with the largest Korean immigrant populations were the Greater Los Angeles Combined Statistical Area (334,329) and the Greater New York combined Statistical Area (218,764).

Korean immigrants are generally college graduates, have higher income, experience a lower poverty rate, and have more private health insurance compared to the total foreign-born population (Zong & Batalova, 2014). In 2013, more than half of Korean immigrants (52%) had a bachelor's degree or higher compared to the total U.S. immigrant population (28%). The median household income was as high as $55,800 for

this population compared to the foreign-born population ($48,100) in 2013. Approximately 11% of Korean immigrant families in comparision to 18% of foreign-born families are living in poverty.

In terms of health insurance, 61% of Korean immigrants had private health insurance, 20% had government funded health insurance, and 25% were uninsured. On the other hand, 50% of the foreign-born population had private health insurance, 24% had government funded health insurance, and 32% had no insurance (Zong & Batalova, 2014).

The Effectiveness of Breast Cancer Screening

Mammography is known as the primary method for early detection of breast cancer presently because it detects the cancer before physical symptoms develop. Early detection has been reported to be critical in breast cancer management because the tumor stage at diagnosis (or tumor size) is strongly associated with survival rate (Elmore et al., 2005). A meta-analysis of 13 randomized trial studies reported that a regular breast cancer screening contributes to a reduction in breast cancer mortality of 20% - 35% in women ages 50 – 69 years old and slightly less in women ages 40 – 49 years old (Elmore et al., 2005). Another meta-analysis study conducted by Amstrong et al (2007) reported a 7% - 23% reduction in breast cancer mortality rates through regular screening for women between the ages of 40-49 years old.

The U.S. Preventive Service Task Force (USPSTF) and the American Cancer Society (ACS) have issued guidelines for breast cancer screening on the basis of current evidence from randomized trial studies. The guidelines differ in their recommendations regarding age to initiate routine screening, the frequency of screening, and age of

discontinuation of routine screening. The USPSTF recommends biannual screening in women between the ages of 50 and 74 years old. The USPSTF is against the regular screening of women ages 40 to 49 years old. They believe that the decision to start screening before the age of 50 years old should be an individual's decision based upon her health, preferences and values regarding the benefits, and harms of screening (US Preventive Services Task Force, 2009). On the other hand, the ACS recommends annual breast cancer screening between the ages of 45 and 54 years old, as well as bi-annual screening or annual screening (patient's choice) for women ages 55 years old and older. Women ages 40 to 44 years old have the choice to start annual screening if interested (Oeffinger et al., 2015).

The use of these guidelines is mixed throughout breast cancer prevention efforts in the U.S., but mammography is generally recommended to women of all racial/ethnic groups, regardless of the guidelines being referenced. It is difficult, however, to assume that regular mammography is equally effective for all women regardless of their race/ethnicity for two reasons. First, most of the randomized trials regarding mammography effectiveness have been conducted in the U.S., Sweden, Canada, Finland, Australia, and U.K. (Elmore et al., 2005; Schopper & de Wolf, 2009). Though these studies did not state the participants' race, given the locations where the studies were conducted may mean fewer Asian women participated in the studies. For example, Miller et al. (2000) describe their study participants simply as "Canadian" (Miller, Baines, & Wall, 1992). Secondly, no randomized trials have addressed the efficacy of mammography specifically in Asian women. One study has reported that mammography could be less accurate in detecting breast cancer in women with dense breasts because

both dense breast tissue and tumors look white on a mammogram (Carmen et al., 2007). Breast density tends to be higher in Asian immigrant women than African American and non-Hispanic White women (Carmen et al., 2007; El-Bastawissi, White, Mandelson, & Taplin, 2000). Asian immigrant women over the age of 55 were found to have significantly greater density compared to non-Hispanic White women (El-Bastawissi et al., 2000).

Studies reported that mammographic sensitivity might be as low as 30% - 48% in women with dense breasts, thus resulting in lower rates of detection and later stage diagnosis (Carney et al., 2003; Berg et al., 2008). A recent study has reported that digital mammography is better at detecting breast cancer than film mammography in women with dense breasts (Kerlikowske et al., 2011). Thus, digital mammography may be a better screening modality in women, such as Asian immigrants, with dense breasts.

Facilitators and Barriers Associated with Breast Cancer Screening

A number of studies have identified various facilitators and barriers associated with breast cancer screening uptake in Korean immigrant women, mostly focusing on socio-demographic characteristics, access to health care, and health belief. Other identified factors include knowledge about breast cancer and screening and social support.

Socio-demographic characteristics. The identified socio-demographic variables associated with breast cancer screening in Korean immigrant women include age, marital status, income, education, length of time living in the U.S., and English proficiency. Only one variable of English proficiency has been consistently found to predict screening participation in the studies. Korean immigrant women with limited spoken English skills

were reported to have had fewer mammograms in the previous 2 years (Juon, Choi, & Kim, 2000) and to get mammograms less regularly (Juon, Kim, Shankar, & Han, 2004). Other variables such as age, martical status, income, education, and length of time living in the U.S., have been inconsistent in predicting screening uptake (Juon, Kim, Shankar, & Han, 2004; Juon, Seo, & Kim, 2002; Maxwell, Bastani, & Warda, 1998; Wismer et al., 1998). For example, three studies reported that married Korean immigrant women were more likely to have had a mammogram than single or widowed women (Lee, Fogg, & Sadler, 2006; Lew et al., 2003; Wismer et al., 1998). On the other hand, a recenty study found that the marital status was not a significant predictor for mammogram receipt (Chio, Koh, Choi, & Cho, 2017).

Access to healthcare. Limited access to healthcare services creates critical barriers to breast cancer screening in Korean immigrant women. Specific barriers include lack of health insurance (Lew et al., 2003; Maxwell, Bastani, & Warda, 1998; Yu, et al., 2003), lack of regular check-ups (Juon, Seo, & Kim, 2002; Juon, Kim, Shankar, & Han, 2004; Han, Williams, & Harrison, 2000; Lee, Fogg, & Sadler, 2006; Wismer et al., 1998), and lack of physicians' recommendations or encouragement for breast cancer screening (Juon, Kim, Shankar, & Han, 2004; Han, Williams, & Harrison, 2000; Maxwell, Bastani, & Warda, 1998). In other words, Korean immigrant women who did not have or had limited health insurance, did not receive regular check-ups, received fewer recommendations for health care providers, and were less likely to have received a mammogram. In addition, a study reporting the effect of the physician's status in breast cancer screening found that Korean immigrant women who had a non-Korean doctor

were more likely to have had a mammogram in the previous 2 years than those who had a Korean doctor (Lew et al., 2003).

Health beliefs. Culture plays a critical role in shaping people's beliefs about health and illness, as well as impacting their health-seeking behaviors (Shaw, Huebner, Armin, Orzech, & Vivian, 2009). Culturally embedded health beliefs may contribute to the delay or failure to undertake cancer screening. Two qualitative studies explored how culturally embedded health beliefs impact breast cancer screening behavior among Korean immigrant women: exploring their beliefs about breast cancer and the symbolic meanings of their breasts (Lee, Tripp-Reimer, Miller, Sadler, & Lee, 2007), and their sociocultural processes surrounding breast cancer screening (Suh, 2008). These studies contributed to a better understanding of the sociocultural context of Korean immigrant women's breast cancer screening behaviors. For instance, Suh's (2008) study revealed sociocultural discord between Korean immigrant women's traditional Korean beliefs and the U.S. culture of health promotion, in regards to breast cancer screening (e.g. believing in fate vs. looking for cancer regularly, to be touched vs. not to be touched in treating female breasts). Recently, a quanitative study demonstrated that women who felt embarrassed were less likely to get a mammogram (Chio, Koh, Choi, & Cho, 2017).

Studies with Korean immigrant women also found breast cancer-related health beliefs using the Health Belief Model (Lee, Kim, & Han, 2009; Lee et al., 2015; Lee, Stange, & Ahuwalia, 2014). Lee et al (2009) examined two cultural factors of modesty and Eastern medicine along with HBM-related variables. They found that perceived benefits to breast cancer screening and breast cancer susceptibility were significantly correlated to past mammogram use, whereas no cultural factors correlated. In addition,

Lee and colleagues (2014) reported that Korean immigrant women, who had low perceived barriers to screening and felt confident to get a mammogram, were more likely to have had at least one mammogram in their life time than their counterparts. Furthermore, a study conducted by Eun and colleagues (2009) found significantly different health beliefs between older and younger Korean immigrant women: screening receipt was associated with perceived barriers to screening, seriousness to breast cancer, and benefits to screening in women ages 65 and older, meanwhile only perceived barriers predicted screening participation in women between ages 40 and 64.

Knowledge about breast cancer and breast cancer screening. Studies examined the effect of knowledge about breast cancer and breast cancer screening on mammogram receipt (Lee et al., 2015), as well as the effect of awareness of screening guidelines on mammogram uptake in Korean immigrant women (Juon, Kim, Shankar, & Han, 2004; Yu, Hong, & Seetoo, 2003). Lee and colleagues (2015) found that Korean immigrant women who never had a mammogram had less knowledge about breast cancer and screening compared to women who had had a mammogram. In terms of awareness of screening guidelines on screening uptake, two studies reported mixed findings. A study conducted by Juon et al (2004) found that Korean immigrant women who were aware of breast cancer screening guidelines were 10 times more likely to have regular mammograms. On the other hand, Yu et al (2003) reported that mammography guidelines are not a significant factor in regular mammogram receipt in Korean immigrant women.

Social support. Studies reported that social support from family members is positively associated with mammography uptake in Korean immigrant women (Han, Williams, & Harrison, 2000; Lee et al., 2015). A study conducted by Han, Williams, and

Harrison (2000) found that Korean immigrant women who received encouragement from their family members were four times more likely to have received a mammogram than those who did not receive such encouragement. Similarly, Lee and colleagues (2015) reported that Korean immigrant women who had never had a mammogram had less spousal support than women who have had a mammogram.

Gaps in the Literature

The literature on breast cancer screening behavior in Korean immigrant women is growing. Previous studies have identified various facilitators and barriers associated with mammography uptake focusing on socio-demographic characteristics, access to health care, and HBM-related variables, dominantly using a quantitative approach. In addition, very few qualitative studies have been conducted with a focus on understanding the impact of Korean immigrant women's perspectives on breast cancer and breast cancer screening. To explain the limited screening participation and expand our understanding of Korean immigrant women's screening behavior, studies need to identify underexplored factors of screening participation such as knowledge on breast cancer screening, breast cancer screening experience, and cultural influence. In addition to examining the factors listed above, more qualitative studies are required to understand Korean immigrant women's views on breast cancer and breast cancer screening, as well as validate the identified factors from quantitative studies.

Furthermore, only three studies investigated cultural beliefs (e.g., fatalism and preventive health orientation) in Korean immigrant women using qualitative studies (Lee, Tripp-Reimer, Miller, Sadler, & Lee, 2007; Suh, 2008) and using quantitative study (Chio, Koh, Choi, & Cho, 2017), although culture has been recognized for a long time as

one of the powerful factors impacting health beliefs and health behaviors (Spector, 2002). On the other hand, some studies examined breast cancer-related health beliefs using the Health Belief Model (Eun, Lee, Kim, & Fogg, 2009; Lee, Kim, & Han, 2009; Lee et al., 2015; Lee, Stange, & Ahuwalia, 2014). Given that Korean immigrant women participating in screening are predominantly first-generation immigrants with Korean culture (Lee, Kim, & Han, 2009), studies comparing the cultural beliefs found in previous studies and breast cancer-related health beliefs in one study would be beneficial in understanding cultural influence on screening uptake in this population.

Another literature gap in the quantitative studies in this field is that the studies that exist have generally proceeded without a theoretical framework. Theoretical frameworks play an important role in guiding the entire process of a study, such as conceptualizing a study and providing rationale to predict relationships among the study's variables. Studies guided by a well-established theoretical framework can contribute to the literature by producing credible evidence. In addition, these studies are more easily replicable.

Lastly, more qualitative studies are needed to understand the screening behavior of Korean immigrant women, considering that most of the literature on the topic is from quantitative studies. The identified factors in quantitative studies may have limitations in describing the complexity and dynamics embedded in these women's screening behavior. Thus, Korean immigrant women's perspectives on breast cancer and breast cancer screening should be explored to capture more contexts of their screening behavior based on their stage of adoption for screening.

Chapter Three

Theoretical Models and Conceptual Framework

The Andersen's Behavioral Model of Health Services Use (Andersen, 1995) (also referred as 'Andersen's Behavioral Model') along with the Health Belief Model (HBM) (Rosenstock, 1966; Rosenstock et al., 1988) will be used as guides to examine facilitators and barriers associated with mammography uptake in Korean immigrant women. These two models have been widely used in studies on breast cancer screening behavior, either together or independently. In this section, each model will be introduced and the conceptual framework for this study will be explained.

The Andersen's Behavioral Model

The Andersen's Behavioral Model was initially developed in 1968 to define and measure access to healthcare, and to assist in developing healthcare policies to promote equal access to healthcare (Andersen, 1968). The purpose of the Andersen's Behavioral Model is to discover conditions that either facilitate or impede health service utilization.

Since the development of the Andersen's Behavioral Model, the model has been used extensively in studies investigating the use of health services. Researchers have applied the model to a broad range of health service settings (e.g., outpatient and inpatient care settings) (Blackwell, Martinez, Gentleman, Sanmartin, & Berthelot, 2009; Brown et al., 2004; Hochhausen & Perry, 2011) and preventive care (e.g., cancer screening or dental care) (Lee, Yang, Lee, & Ghebre, 2015; Vyas et al., 2012) among diverse adults. Furthemore, recent studies have employed the model to predict variables associated with health literacy (Lee, Choi, & Lee, 2014; Lee, Choi, & Park, 2013; Wister, Malloy-Weir, Rootman, & Desjardins, 2010).

Key components of the model. According to the Andersen's Behavioral Model, individuals' access to and use of health services are basically explained by a function of three components of predisposing, enabling, and need factors. Each component has a different degree of mutability, which is an important concept for promoting health service utilization. Mutability refers to the extent to which a given factor can be altered to influence individuals' health service use (Andersen & Newman, 2005). Medium or high-level of mutable factors could be altered through interventions or health care policies that might bring about individuals' behavioral change (Andersen, 1995).

(1) Predisposing factors. Predisposing factors refer to an individual's social-cultural characteristics that exist prior to their illness, including demographic characteristics, social structural variables, and health beliefs. Demographic characteristics represent biological imperatives such as age and gender, which might impact the need for healthcare. These demographic variables have low mutability because age and gender cannot be altered to promote health service utilization. Social structural variables reflect an individual's status in society as well as his/her ability to cope with problems and the accessible resources they used as a coping mechanism. Measures of social structure are education, ethnicity, occupation, and social networks. The social structural variables have relatively low mutability, since some variables (e.g., ethnicity) cannot be altered and other variables (e.g., occupation or education) cannot be changed via shot-term policy to increase health service utilization. Health beliefs are individuals' attitudes, values, and knowledge that may influence their health and health services use. Health beliefs have medium mutability since they can be altered through health related educational programs and directly affect individuals' behavioral change (Andersen, 1995).

(2) Enabling factors. Enabling factors reflect conditions making healthcare available to individuals through personal or community resources. Adequate enabling resources provide individuals the means to access health service and increase the possibility that individuals' use of health service will occur. Personal resources are assessed by the extent of financial resources (e.g., income) and sources of medical care (e.g., health insurance status, regular source of care, and accessibility and use of information sources). The extent and quality of social relationships, and transportation and travel time to access health care are also included under personal resources. Community resources include available health service facilities and personnel in an individual's residing area, and the waiting time to receive health care. Some of these enabling factors, especially personal resources, could be mutual and may strongly influence health service utilization (Andersen, 1995). Similar to predisposing factors, enabling factors such as sources of medical care could be altered through health related policy, program, and services.

(3) Need factors. Need factors are considered one of the strongest determinants of individuals' use of health services. An individual's needs are assessed by perceived needs and evaluated needs with regards to illnesses. Perceived needs include the ways which individuals view their own general health, their experience symptoms of illness, pain, worries about pain and their health, and their judgment regarding the decision to seek professional help. Evaluated needs represent medical providers' judgments about individuals' health status and their need for medical care (Andersen, 1995). Need factors were not originally considered mutable variables because they are immediate reasons to take action for health care use. However, individuals' perceived needs could be mutable

because the needs could be changed by health educational programs or financial incentives to seek health services, and etc. (Andersen, 1995).

The specific relationships among predisposing, enabling, and need vary depending on the character of the health service (Andersen, 1968). For example, if an individual needs ambulatory care, the decision to use the service depends on the extent of need rather than on predisposing or enabling factors (Wolinsky, 1978). On the other hand, an individual's decision will be influenced by more predisposing and enabling factors than need factors when it comes to preventive care, such as cancer screening (Andersen, 1968).

Studies guided by the Andersen's Behavioral Model. The Anderson's Behavioral Model has been widely used in studies on cancer screening behavior, including breast cancer screening (Harcourt et al., 2014; Leong-Wu & Fernandez, 2006; Rahman, Dignan, & Shelton, 2005), cervical cancer screening (Lee, Yang, Lee, & Ghebre, 2015; Bazargan, Bazargan, Farooq, &Baker, 2004), both breast and cervical cancer screening (Ivanov, Hu, & Leak, 2010), and colorectal cancer screening (Lee, Lundquist, Ju, Luo, & Townsend, 2011) in various minority ethnic groups including Hmong, African, and Hispanic American.

To determine the factors associated with cancer screening receipt, the studies investigated predisposing, enabling, and need factors. Only a small common set of variables were used and there was substantial variation in the ways these variables were categorized into the three factors. This may result from secondary data sets used in some of the studies, which limited available variables for the studies (reference). The majority of the studies included age, education, and ethnicity as predisposing factors. The studies

also included marital status, cultural beliefs (e.g., fatalism and cultural modesty), family size, and acculturation. As enabling factors, most of the studies included availability of health insurance and income or financial strains. The studies also included having a primary care physician, receipt of public benefits, affordability of medical care expense, and continuity of medical care. Some variables were assigned to either predisposing or enabling factors, including employment, English proficiency, and number of years in the U.S. As need factors, most of the studies included self-rated health status. The studies included family history of cancer, gynecological problems, recommendations by health care providers for cancer screening, smoking behavior, the presence of chronic disease, and pregnancy within the past 12 months.

There was a lack of consistency in the findings of the studies, although significant associations were found between the factors examined in the studies and the participants' cancer screening behavior. It may be possible that the characteristics of the study population, the different sets of variables, and the different types of screening might impact on the strength and direction of these associations (reference). For example, Lee and colleagues (2015) examined Hmong immigrant women's cervical cancer screening behavior. The study included four predisposing factors (age, marital status, fatalism, and cultural modesty), six enabling factors (education, English proficiency, employment, health insurance, having a primary care physician, and motivation), and two need factors (self-rated health status and cancer literacy). The study reported three predisposing factors (fatalism, modesty, and marital status) and one enabling factor (education) as being significantly correlated with receipt of a Pap test. Another study conducted by Leong-Wu and Fernandez (2006) investigated mammography receipt in Asian American

women. The study included four predisposing factors (age, education, perceived barriers, and years of immigration), two enabling factors (income and health insurance), and one need factor (family history of breast cancer). This study reported that one predisposing factor (years of immigration) and one enabling factor (health insurance) were significantly associated with mammography receipt. The two example studies identified predisposing and enabling factors associated with cervical and breast cancer screening, which could be altered though short-term policies, educational program, and services, as well as directly affect individuals' screening behavioral change.

The Health Belief Model (HBM)

The HBM was initially developed in the 1950s (Rosenstock, 1966; Rosenstock et al., 1988) and has been widely used in health behavior research to explain health-related behaviors, and particularly people's participation in programs to prevent and detect disease. The HBM includes several key components that predict what makes people use health services to prevent, to screen for, and/or to control illness conditions. The key components of the HBM include perceived susceptibility, perceived seriousness, perceived benefits and barriers to a behavior, cues to action, and self-efficacy (Champion & Skinner, 2008).

(1) Perceived susceptibility. Perceived susceptibility refers to persons' subjective beliefs about the risks of developing disease or illness. Individuals who perceive that they are susceptible to a given health issue are more likely to engage in behaviors to prevent the health issues before it occurs.

(2) Perceived severity. Perceived severity refers to persons' subjective beliefs about the likelihood of getting a disease or illness. Individuals who perceive seriousness

in regards to a given health issue are more likely to take actions to prevent the health issue before it develops.

(3) Perceived benefits. Perceived benefits refer to an individual's perception of the effectiveness of various actions available to reduce the threat of disease or illness. If an individual believes that a certain action will reduce their susceptibility to disease or decrease its seriousness, they are more likely to accept the recommended action.

(4) Perceived barriers. Perceived barriers refer to an individual's perceived negative aspects of performing a particular health action, including perceived inconvenience, expense, danger (e.g., side effect), and discomfort (e.g., pain). Even if an individual perceives a disease as threatening and believes that a particular action will reduce the threat, perceived barriers may act as obstacles to undertaking the recommended actions. In other words, the perceived benefits should outweigh the perceived barriers in order for an individual to take the recommended actions.

(5) Cues to action. Cues to action refer to cues or triggers that are necessary for promoting a particular health action. Cues can be internal (e.g., pain or symptoms) or external (e.g., events, information, or health care providers' recommendations).

(6) Self-efficacy. Self-efficacy refers to the level of an individual's confidence in their ability to successfully perform a particular action. If an individual believes that they feel competent to overcome perceived barriers, they are more likely to take recommended actions.

In summary, individuals tend to take recommended health actions if they feel vulnerable to a particular health condition, believe that the health condition would have serious consequences, believe that taking available action would be beneficial in reducing

their susceptibility to or the severity of the condition, believe that the benefits of taking action outweigh the barriers to action, have triggers to promote the action, and feel confident in taking the action (Champion & Skinner, 2008). Modified factors (e.g., socio-demographic characteristics and knowledge) could influence individuals' health beliefs, and the combination of the health beliefs leads to behavior. The relationships between and among the components are ambiguous. Cues to action directly influence individuals' behavior.

Association of HBM components with mammography behavior. The HBM predicts that women will be more likely to have screening mammography if they feel vulnerable to breast cancer, believe breast cancer is a serious disease, perceive benefits of screening as higher than barriers, feel confident receiving mammography, and receive a cue to action (Champion & Skinner, 2008). Many studies have reported these expected relationships between HBM constructs and mammography uptake. For example, breast cancer screening behavior was found to be significantly associated with higher benefits, greater susceptibility, lower barriers, and higher self-efficacy in Korean immigrant women (Lee, Kim, & Han, 2009; Lee, Stange, & Ahuwalia, 2014).

Conceptual Framework for the Current Study

A conceptual framework for the quantitative phase of this study was developed based on guidance from the Andersen's Behavioral Model (Andersen, 1995) along with the HBM (Rosenstock, 1966; Rosenstock et al., 1988) (see Figure 4). This study examines various independent variables comprised of predisposing, enabling, and need factors. Predisposing factors encompass one demographic characteristic (age), two social structure (level of educational attainment and portion of life spent in the US), and two

cultural beliefs (fatalism and preventive health orientation). Enabing factors consist of seven variables: regular check-up, learning mammogram experiences from family, friends, and neighbors; breast cancer screening knowledge; and four HBM related variables such as perceived susceptibility, perceived benefits, perceived barriers, and self-efficacy. Lastly, need factors include the number of chronic diseases and family history of cancer.

The qualitative component of this study helps to explain the identified facilitators and barriers from the quantitative component by providing a more comprehensive and contextual description of Korean immigrant women's views on breast cancer and breast cancer screening based on screening experience.

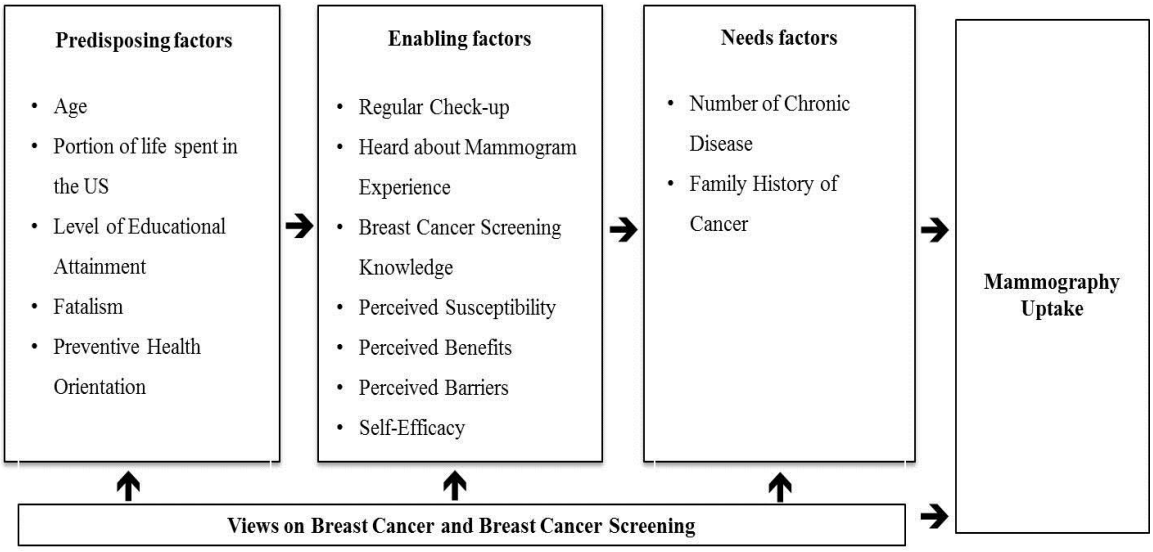


Figure 4. Conceptual Framework

Chapter Four

Research Methods

The Mixed Methods Approach

Mixed methods research is an approach in which quantitative and qualitative modalities are integrated in order to provide a better understanding of the phenomena under study (Creswell, 2015). There are five dimensions involved in the determination of the mixed methods design typology: purpose of mixing, the priority of methods, the sequence of qualitative and quantitative approaches, the integration of qualitative and quantitative approaches, and the number of strands of research (Haight & Bidwell, 2016). Current study employs an explanatory sequential mixed methods design (Creswell, 2015). As shown in Figure 5, an explanatory sequential design examines a problem by beginning with a quantitative component and then conducts a qualitative study to explain the quantitative results. After a qualitative study is conducted, interpretations on the results show how the qualitative findings support the quantitative results. In an explanatory sequential design, qualitative sample should be drawn from a pool of the quantitative samples if the intention of the design is for the qualitative data to explain the quantitative results. The sizes of the two samples of quantitative and qualitative study could be the same or different (Creswell, 2015).

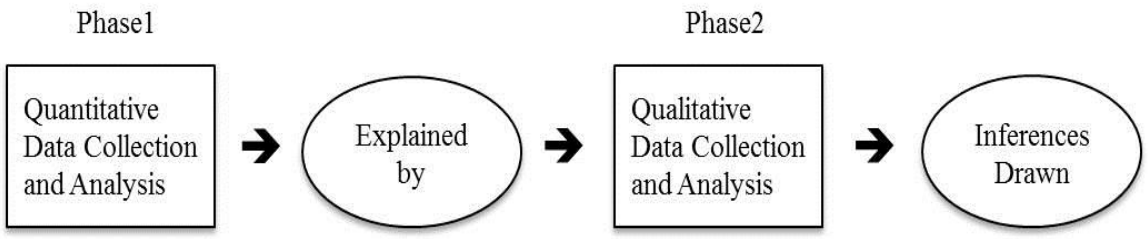


Figure 5. Explanatory Sequential Design

In the the first phase of this study, the quantitative study was designed to examine facilitators and barriers of breast cancer screening uptake in Korean immigrant women using a cross-sectional research design. The qualitative study was intended to explain and supplement the identified facilitators and barriers associated with breast cancer screening uptake from the quantitative study by providing more nuanced, comprehensive, and socialcultral contextual descriptions of Korean immigrant women's views on breast cancer and breast cancer screening. In this study, quantitative data were collected first and then qualitative data were collected prior to analyzing the quantitative data due to cost and time issues. In this section, the quantitative component of the current study will be described first then the qualitative component will be stated.

The Quantitative Phase of the Study

Research design

In order to investigate facilitators and barriers of mammography uptake in Korean immigrant women, this study employed a cross-sectional research design. A cross-sectional study is a type of observational study that involves the analysis of data collected from a population or a representative subset at a single point in time (Rubin & Babbie, 2011).

Sample strategy

Samples of population units for this study were selected using non-probability and convenience sampling methods. Convenience sampling is one of the main types of non-probability sampling methods where study participants are selected because of their convenient accessibility and nearest to the researcher (Rubin & Babbie, 2011). Convenience sampling has limitations. For example, some groups may be over or under

represented, which limits the generalizability of the study. To decrease sampling bias resulting from non-probability sampling, quota sampling was adopted (Neuman, 1994), which selects the same portions of individuals with respect to known characteristics, traits, or focused phenomenon to study. In this study, age was considered as the research's quota criteria, thus each age group of study participants was to ensure to have equal numbers.

Sample size was determined using the software G. Power 3 program. A power analysis was conducted based on the conservative odds ratio of 1.93 (range= 1.93 - 10.68) for sociodemographic (Juon, Choi, & Kim, 1999; Juon, Seo, & Kim, 2002; Lee, Fog, & Sadler, 2006), access to health (Lew et al., 2003), health beliefs (Lee, Kim, & Han, 2009), and knowledge of breast cancer screening (Juon, Kim, Shankar, & Han, 2004) in relation to mammogram participation, the significance level of .05, and the power of .80. The required sample size was computed to be 197. This study recruited 240 Korean immigrant women between the ages of 40 and 79 years. The goal was to recruit a sample of 60 women in each age group of 40s, 50s, 60s, and 70s. However, it was difficult to recruit the same number of women in each group. Thus, approximately 62 women in their 40s (24.84%), 56 womens in their 50s (23.33%), 68 womens in their 60s (28.33%), and 54 women in their 70s (22.50%) completed the surveys. Of participants, 28 were excluded from the analyses because of substantial incompletion of items or apparent random response. The final sample for the analysis was 212, giving a response rate of 88%: 57 women in 40s (26.89%), 49 women in 50s (23.11%), 60 women in 60s (28.30%), and 46 women in their 70s (21.70%).

Recruitment

Study participants were recruited on a voluntary basis at various community–based sites (e.g., churches, social service agencies, and community centers) where Korean immigrant women are more likely to be reached by flyers, snowballing, and word-of-mouth strategies. Snowball strategy refers to asking each research participant to find other potential participants (Rubin & Babbie, 2011). Similarly, word-of-mouth strategy relied on study participants talking to others using a variety of platforms (e.g., in-person conversation, phone call, or text messages) about the study. Both snowballing and word-of-mouth strategies are useful in research on minority populations because potential participants are sometimes hard to reach and they tend to be closely connected (Rubin & Babbie, 2011). Multiple sampling sites minimize sampling bias inherent in non-probability sampling and convenience sampling methods such as snowballing and word-of-mouth strategies. In the current study, approximately half of the participants (50.9%) reported learning about information about this study through religious organizations (e.g., churches and temple). About a quarter (25.4%) learned about the study through their friends and family members; meanwhile, 17.9% received information at a social service center and/or a senior center. A mere 5.7% of participants learned about the study via flyers posted at their apartment (e.g., senior apartment).

Eligibility criteria for the current study were Korean immigrant women who are between 40 and 79 years old, resided in Los Angeles County, California, were fluent in Korean language, and did not have a history of breast cancer. The age criterion was selected based on the guidelines of the U.S. Preventive Services Task Force (USPSTF) and the American Cancer Society. As noted earlier, the guidelines differ in their

recommendations regarding age to initiate routine screening, the frequency of screening, and age of discontinuation of routine screening. Both recommend a screening for breast cancer as low as 40 years old and the USPSTF does not recommend a screening for women 80 years old and older, thus women aged between 40 and 79 years old were included in this study.

Los Angeles was considered the ideal setting for recruiting a sample of Korean immigrant women as a majority of Korean immigrants reside in the state of California. According to the 2010 Census, there are approximately 452,000 Korean immigrants in California, which is about 37% of the total Korean immigrant population in the United States (Census, 2010). Los Angeles is one of the biggest cities in California and the Greater Los Angeles Area is one of the two metropolitan areas with the highest Korean American population (Census, 2010)

Data collection

Data was collected using a structured questionnaire. The questionnaire was developed in English and translated into Korean using a back translation method. The study author translated the English version into Korean and two doctoral students who are also bilingual in English and Korean reviewed the Korean version. A third bilingual doctoral student, who was unaware of the intent and the concepts underlying the instrument, assisted with back translation from Korean version to English. No significant discrepancies were noted between the different language versions. After the questionnaire was developed, two pilot tests were conducted in Minnesota to determine whether the developed survey was understandable and culturally sensitive. One pilot test went along with paper survey and another one was conducted using an online survey via REDCap by

iPad. A total of nine Korean immigrant women ages between 40 and 79 years old participated. The mean age of the participants in the pilot test was 60.22 years (SD=8.09) and 55.6% of the participants (n=5) graduated with at least a college degree. The first pilot test using paper survey was conducted with five women. The five participants completed paper surveys and participated in a focus group to share their thoughts about the surveys such as length, flow, and word choices of the survey. Their feedback was reflected in the questionnaire post discussion with the study author's advisor on issues found during the pilot-test and focus group interview. A second pilot test was conducted with four women who completed the survey using an online survey via REDCap by iPad. No issues were found, thus the questionnaire was finalized (Appendix 8).

Data collection for this study began in July 2016 and ended in September 2016. The purpose of the study, confidentiality, eligibility criteria, and the voluntary nature of participation were briefly explained through public presentations at several sites or at the beginning of the interviews. Korean immigrant women were screened based on study eligibility, if they were willing to participate in this study. Of these women who were determined as eligible were asked to sign an informed consent form that discussed issues of voluntary participation, withdrawal, and confidentiality. Study participants were provided a copy of the consent form.

Questionnaires were either self-administered or face-to-face interviews using an online survey via REDCap by iPad or a paper survey at the recruitment sites or locations of study participants' choice. Approximately 96.7% of participants completed a paper survey and only 3.3% used an online survey. Most participants completed the questionnaire by themselves and the average length of completion was between 45 to 60

minutes. A face to-face interview was conducted with a few participants by request, to improve comprehension and to probe for clarification. The study author conducted the face-to-face interviews. Each participant was given a $20 gift card after completing the questionnaire.

Measures

In the present study, measures were mostly adopted from the existing instruments proved to be reliable and valid in prior studies.

Dependent variable. Dependent variable measured respondents' self-reported behavior of screening uptake. Survey participants were asked questions about whether they had received a mammogram in their life (1=Yes, 0=No) and when they had their last mammogram. The receipt of mammography within two years was used as the primary dependent variable. Additional information related to their screening behavior was also collected. For example, if they answered "Yes" to the question of their mammogram receipt in their life, they were asked the following questions: (1) how come they had the mammogram, (2) how often they had a mammogram, (3) whether their mammogram experience overall had been positive or negative (0 = very negative to 5 = very positive), and (4) whether they had gone through any follow-up tests (e.g., diagnostic mammography, ultrasound, and biopsy) after mammogram uptake.

Independent variables. Guided by the Andersen's model, this study adopted three sets of independent variables including (1) four predisposing, (2) seven enabling, and (3) two need factors.

(1) Predisposing factors. A total of five predisposing factors were assessed: one demographic characteristic (age), two social structure characteristics (level of educational

attainment and length of residence in the U.S.), and two cultural beliefs (fatalism and preventive health orientation).

Age was assessed with a question asking the year of the participant's birth. By subtracting the participants' birth data from the survey date, the exact age was calculated as a continuous variable in years.

Portion of life spent in the US. The participants were asked how long they had been in the United States. To create the portion of life spent in the US, the length of stay was divided by their age. For the analysis, length of residence in the U.S. was dichotomized as less than 25% and more than 25%.

Level of educational attainment was measured by participants' self-reported highest level of education (1=elementary school, 2=middle school, 3=high school or equivalent, 4=college or university, and 5=graduate school). For the analysis, educational attainment was dichotomized as high school graduate or less and at least some college.

Two cultural beliefs of fatalism and preventive health orientation were measured with the instruments from Liang et al (2008) and and Kwok et al (2015), respectively. In this study, fatalism is defined as "a belief that some health issues are beyond human control on the basis of certain views about luck, fact, predestination, and destiny" (Powe & Finnie, 2003). In this study, fatalism was measured using nine items developed by Liang et al (2008) and preventive health orientation was measured using four items invented by Kwok et al (2015). All items were on a 4-point scale ranging from strongly disagree to strongly agree with higher item score indicating stronger belief for the given construct. The scores of each construct were computed by the sum of item scores. The

four items of preventive health orientation were recorded. In this sample, reliability coefficients of the Korean translation were .79 for fatalism and .79 for preventive health.

***(2) Enabling factors*.** A total of seven enabling factors were assessed, including regular check-up, hearing about mammogram experiences from family members, friends, and neighbors, breast cancer screening knowledge, and the four HBM variables such as perceived susceptibility, perceived benefits, perceived barriers, and self-efficacy.

Regular check-up was measured by asking participants to indicate their regular check-up status between "Yes" and "No".

Breast cancer screening knowledge was measured by adopting McCance et al's (1990) breast cancer knowledge test tool that focuses on breast cancer detection and screening practice. The test tool consisted of 18 items and reported internal consistency as a high of .81. A 2009 study with Korean immigrant women used 10 of the 18 items that has demonstrated an acceptable internal consistency of .70 (Han, Lee, & Kim, 2009). Seven of the 18 items were selected for the present study since mammography will be the main focus. The three questions about mammography guidelines were adopted from the ACS (Oeffinger et al., 2015) and USPSTF. An additional item was also selected due to the relation of breast density and from Susan G. Komen for the Cure website. A higher score indicates that women have more knowledge on breast cancer screening. The internal consistency coefficient was .62 in this sample.

Perceived susceptibility to breast cancer was measured using three items from Champion (1999)'s HBM scales. Champion (1999) reported their internal consistency was as high as .87. A study on breast cancer screening in Korean immigrant women demonstrated high internal consistency of .85 (Han, Lee, Kim, & Kim, 2009). The three

items are based on a 4-point scale ranging from strongly disagree to strongly agree. A higher score of perceived susceptibility indicates that women felt they are at high risk of having breast cancer. The internal consistency coefficient of the Korean translation was .81 in this sample.

Perceived benefits to breast cancer screening was measured using five items on a 4-point scale ranging from strongly disagree to strongly agree, from Champion's (1999) HBM scales (Cronbach's alpha = .75). Previous studies on breast cancer screening in Korean immigrant women that used the same items have demonstrated good internal consistencies of .83 (Lee, Kim, & Han, 2009) and .90 (Han, Lee, Kim, & Kim, 2009). The internal consistency coefficient of the Korean translation was .74 in this sample.

Perceived barriers to breast cancer screening was measured using 14 items measured on a 4-point scale ranging from strongly disagree to strongly agree. The 14 items consist of 11 items developed by Champion (1999) (Cronbach's alpha =.88) and three items reflecting barriers to immigrant women from previous studies (Lee et al., 2015; Lee, Kim, & Han, 2009). The three items included difficulty in speaking English with a physician, cost to get a mammogram, and unreliable transportation. In this sample, reliability coefficients of the Korean translation (14 items) were .83. Previous studies on breast cancer screening with Korean immigrant women used only Champion's 11 items (Cronbach's alpha =. 71) (Han, Lee, Kim, & Kim, 2002) or created five more items to measure barriers to immigrant women (e.g., cost, transportation, and langue issues) in addition to Champion's 11 items (Cronbach's alpha ranging from .71 to .73) (Lee et al., 2015; Lee, Kim, & Han, 2009).

Self-efficacy of breast cancer screening was measured by 10 items measured on a 4 point-scale ranging from strongly disagree to strongly agree. Champion et al (2005) developed the 10 items for mammography and the internal consistency was reported to be as high as .87. The word "You" in the original instruments was changed to "I" in this study. In the current study, reliability coefficient of the Korean translation was .88.

(3) Need factor. Two need factors, number of chronic disease and family history of cancer, were assessed.

Number of chronic disease was measured by asking whether they have any chronic disease (1=Yes, 0=No). If they endorsed "Yes", they were asked a following question about the types of their chronic disease. For the analysis, number of chronic was considered as a continuous variable by counting the types of chronic disease.

Family history of cancer was measured by asking participants to indicate if they have a family history of cancer, selecting between three categories (i.e., yes, no, and not sure/don't know). If they endorse "Yes" they were asked about the type of cancer in the form of a short-answer question. For the analysis, family history of cancer was dichotomized as yes and no (no and not sure/don't know).

Data management and analysis

Data management.

As noted earlier, survey data was collected using an online survey via REDCap by iPad or paper survey. A study author was trained on how to use REDCap and complied with protocol specific instructions embedded within REDCap. The study author was responsible for registering the participant into REDCap at the time of study entry and updating the participant record until the end of study participation. The data from the

paper surveys was entered into REDcap within one week after the surveys were completed. The data were entered into REDcap by the study author. The paper surveys and any confidential information related to participants were kept in a locked filing cabinet secured by the study author.

Participant demographics and study specific data were placed in REDCap data, which uses a MySQL database via a secure web interface, along with data checks used during data entry to ensure data quality. REDCap includes a complete suite of features to support HIPAA compliance, including a full audit trail, user-based privileges, and integration with the institutional LDAP server. The MySQL database and the web server were both housed on secure servers operated by the University of Minnesota Academic Health Center's Information Systems group (AHC-IS).

The collected data was stored securely (e.g, locked computer) and only the study author had access to the data.

Data analysis. At the descriptive level, the distribution and frequency of all items that were used as independent variables were examined using univariate analysis. The relationships between independent variables and screening receipt, and relationship between independent variables were examined using bivariate analyses such as chi-square tests, independent sample t-tests, and Pearson's Correlation Analysis. Additionally, a multivariate analysis using logistic regression was conducted to examine the relationship between mammogram receipt within 2 years and predisposing, enabling, and need factors. These three sets of variables were entered in sequential blocks to investigate if the significance of each variable changed in the presence of the other variables. Model 1 included only predisposing factors as independent variables. Model 2 added enabling

factors to Model 1. Model 3 added need factors in addition to the variables in Model 2; hence, Model 3 formed the completed adjusted model. In the logistic regression, "no-screening group within 2 years" was the reference group for the dependent variable of the receipt of mammogram within the past two years. All analyses were conducted using the Statistical Package of SPSS version 24, and the significance level of .05 was used to identify significant effects.

The Qualitative Phase of the Study

Research design

Given the deficiency of existing qualitative research into Korean immigrant women's perspectives on breast cancer and breast cancer screening based on their screening experience, exploratory qualitative study was chosen which is suited to examine a phenomenon that has been explored little (Rubin & Babbie, 2011). The primary strength of qualitative study is its ability to construct meaning in a complex manner. The goal of qualitative study is to explain the human's experience of a phenomenon, not generalizability (Patton, 2002). In this case, the goal is to construct the meaning of Korean immigrant women's views on breast cancer and breast cancer screening based on their screening experience. In addition, this study aimed to describe their motivations and challenges to breast cancer screening. These insights help to better understand their screening behaviors and how they can be used to shape interventions, policies and further research.

A grounded theory method guided the data collection and analysis in this study. The grounded theory method fits well when a theory is not available to explain a process (Strauss & Corbain, 1990). Grounded theory methods were developed to generate or

discover a theory based on data obtained from social research (Glaser & Strauss, 1967). The method allows the discovery of new information and is used to explain findings and provide a framework for further exploration (Strauss & Corbain, 1990).

The grounded theory method fits with the purpose of this study, which is to formulate a substantive theory that helps explain Korean immigrant women's screening behavior. Breast cancer screening is an ongoing process because it is recommended to certain age group in women, thus the method is well suited to understand the changeable nature around women's experience to breast cancer screening. The grounded theory method provides the flexibility to follow themes in the data as it emerges and enables the researcher to reshape and refine data collection and analyze the process. The grounded theory method helps to expand the existing theories that were incapable of explaining Korean immigrant women's screening behavior and potential variables the researcher is interested in.

Study sample and recruitment

The intent of qualitative study was to better explain the results from the quantitative study of this study. As noted earlier, the qualitative sample draws from the pool of the quantitative sample if the intention of the qualitative data is to explain the quantitative results in an explanatory sequential design (Creswell, 2015). Thus, participants were selected from Korean immigrant women who participated in the surveys. At the end of surveys, the purpose of the qualitative study and its procedure were introduced. The participants were asked to provide their contact information if they are interested in the qualitative study at the end of surveys. A total of 67 out of 240 participants included their contact information to participate in the qualitative study.

Using a purposeful sampling design, a total of 30 women participated in individual interviews. Purposeful sampling allowed selective participants whose experiences facilitated an understanding of the phenomena in question. In this case, Korean immigrant women's unique history of breast cancer screening was the criterion to select study participants for interviews (Patton, 2002).

The study author reviewed the screening experiences of the 67 participants who provided their contact information and showed interest in the qualitative study. The participants were categorized into three different groups based on their screening experiences: regular screener, irregular screener, and never been screened before. Participants were invited to interview if they were willing to complete the following 1) share their thoughts about breast cancer and breast cancer screening, 2) experiences with mammogram uptake as applicable, 3) willing to participate in a follow-up interview as needed, and 4) willing to be recorded via audio record. Overall, the majority of Korean immigrant women who had no experience with mammogram were unwilling to participate in interviews.

Among the 67 participants, only 30 women were interviewed. In qualitative research there is no rule for determining an appropriate sample size because the goal is not generalizability but a meaningful explanation of a phenomenon. Typically, a qualitative study focuses on small samples (even single case) selected purposefully to best help researchers to understand a phenomenon in depth (Patton, 2002). Lincoln and Guba (1985) state the sampling should be conducted until new participants yield no new information. Thus, sampling in this study was stopped when interview data was saturated.

The 30 participants were categorized into four groups based on their recent mammogram experience and their regularity to screening (how often they get a mammogram). To be specific, group 1 includes participants who had a mammogram in the past 2 years and continues with check-up annually. There were four participants in group 1 and all their interviews were analyzed in this study. Group 2 contains participants who had a mammgoram in the past 2 years and continues to get a checkup every other year, or once every 3 or 4 years. There were 12 participants in this group and only 8 interview data were analysed because of reaching data saturation and time limitations. Group 3 includes participants who had not a mammogram in the past 2 years. There were 10 participants in this group and only 8 interview data were analyzed due to reaching data saturation and limited timeline. Group 4 was composed of only four participants. Two participants never completed screening and the last two had their first mammograph in the past 2 years. Data on these four participants were excluded from the data analysis for two reasons: 1) it is unreasonable to divide the four participants into two groups (e.g., non-screening and one-time experience) to compare with the rest of groups, 2) their stories were not different from other participants in group 2 and 3. To sum it up, this study included 20 participants' interview data: 4 particpants in group 1, and 8 participants each in group 2 and 3.

Data collection

The basis of a grounded theory is rich data (Patton, 2002). The researcher used individual interviews to construct grounded theory. One-to-one interviews using open-ended questions are effective to draw out individuals' subjective perspectives and their experiences with mammograms (Charmaz, 2006). In addition, individual interviews are

useful to research on sensitive topics among vulnerable populations. Some of these sensitive topics include topics women find difficult to discuss in open public and/or researchers find difficult to discuss with participants in public areas (Charmaz, 1990). For example, an individual interview was conducted to openly discuss with participants with different levels of mammogram screening experiences in a private and/or comfortable area for participants.

Study participants were given options to choose a time and place suitable for the interviews. These interviews were conducted based upon their choice of time and location, specifically in person or by phone. The study author was responsible for conducting the individual interviews. Three women participated in phone interviews among the 30 participants because of their busy schedules. The interviews for the rest of 27 participants were conducted in person at a variety of locations such as women's home, churches, and coffee shops. At the start of the interview, participants were provided with information: purpose of the study and the flow of the interview. Participants were provided with a consent form and information on confidentiality. They were also informed the audio records will be kept in a secure location. In addition, they were given a chance to discuss any concerns and asked questions related to the study and confidential records. The written consent form (Appendix 6) was given to participants which includes consent to an audio recorded interview. Once consent forms are completed, each participant was provided with a copy consent form to keep.

The length of the interviews was influenced by the capacity of the participants. Each interview lasted approximately between 1 hour and 3 hours. Each interview was semi-structured and included a few pre-set and open-ended questions (Appendix 9). The

questions explored the participants' views on breast cancer and breast cancer screenings based on their screening experience, and offered room for suggestions in promoting breast cancer screening in Koream immigrant women. The interview guide was tested with 4 Korean immigrant women before the actual interviews were conducted. The interview guide provided some structure during each interview.

With the participants' permission, the interview was audio recorded and noted during the interview. The recording was to accurately record the information provided by participants, and use for transcription purposes only. Study participants received a $20 gift card after completing individual interviews.

While the researcher conducted all interviews, she wrote observation journals on the individual interview processes such as descriptions of the interview location, atmosphere, participants' emotions and expressions, and her own reactions to each interview. She also noted her thoughts and insights from each interview. The field notes are used in qualitiatve study as a written record for analysis process (Corbain & Strauss, 2008). The notes played an important role in data colletion and analysis process as she continued to connect and elaborate codes and themes. In addition, the notes allowed her to engage in reflexivity throughout the research process. Reflexivity is a vital technique to identify researchers' biases, values, and personal backgrounds (e.g. gender, culture, and socioeconomic status), that impact all stage of the research process (Creswell, 2009).

Data management

Each interview was digitally recorded, so the study author was able to attend to participants' responses without concerns that she would miss a critical piece of their descriptions. She tried transcribing interviews verbatim as much as she could, thus she

did for seven interivews. Due to a limited timeline for conducting the research study, the audio files were delivered to a transcriber without other personal information about participants.The transcriber was a college student whose first language was Korean and well- trainined for transcribing. Once the transcriber completed his role, the transcripts were then sent to the study author. She examined the transcripts and made comparisons to the original audio files for the purpose of accurancy. All the interviews were transcribed in Korean and stored in Microsoft Word documents. The audio files and all the transcripts were securely stored in a locked computer.

Data analysis and interpretations. The goal of qualitative analysis is to identify categories and themes based on data reduction and interpretation. Grounded theory methods, specifically Charmaz (2006) guidelines for qualitative research using grounded theory methods, were used to analyze the data. In grounded theory, data analysis begins as soon as the first bit of data is collected because the analysis is used to direct the next interview and observations. Given the limited timeline to collect data in Los Angeles, field notes and journals were mainly used to review and analyze for cues to prepare the next interviews. Analyzing the notes and journals continued throughout the data collection process using the constant comparison method (Charmaz, 2006; Corbin & Strauss, 1990). Constant comparative method is to compare similarities and differences between with new data and exsiting interpretations. The study author used collected notes and journals to prepare for the next interviews.

Constant comparative method was also used to analyze transcripts. The process of constant comparions is core of the grounded theory generation because it compares and contrasts the data across categories and themes seeking patterns that generate theorietcal

explanation (Glazer & Strauss, 1967). Making comparsions help to achieve precision and consistency, as well as assist the researcher in guarding against bias (Corbin & Strauss, 1990). One way that data can be continuously compared is coding. Coding is the process to develop concepts from the data and lead to the emergence of a theory that explains the phenomenon (Charmaz, 2006; Corbin & Strauss, 2008).

Microsoft Word documents were used to store, code, and organize the data during the analysis. The initial data analysis began with a line-by-line examination of the data. Then, text was openly coded after reading and re-reading in order to break down the data into meaningful categories. This process generated a list of codes that were descriptive. The comments function in Microsoft Word documents was used to create the codes.

Then, study author moved into axial and selective coding, which are more focused phases of coding. In axial coding, categories are related to their subcategories formed in intial coding and then the data are input back together to check their relationships (Corbin & Strauss, 1990). Selective coding is the process when all categories unified around a "core" category through the process of integrating the categories emerged in open and axial coding (Corbin & Strauss, 1990).

Using the constant comparion method, analysis across interviews continued. This process made the author ensure her conceptual structure as it emerged, allowing her to check the data for evidence of either demonstrative or disconfirming as she moved her codes to categories. The next step was to move toward a more conceptual description that still included the initial set of coding to the large conceptual themes: Korean immigrant women's on cancer and cancer screening based on their experience. In addition to examining the data, she consulted with her advisor.

Credibility

For a qualitative study to be truthful, various realities identified in the data should be authentically described in a credible way. After data analysis was done, study author scruitized her efforts to make sure that her interpreations were relevant, fit with data, and credible. In order to prove credibility, she documented her process decisions in detail using memos and journaling, which is called an audit trail (Lincoln & Guba, 1985). The memes and journals helped her to reflect on her role as a researcher and shape the research procedures.

The current study protects truth through mainly triangulation and peer debriefing. Triangulation is a way to confirm the findings as well as uncover discrepancies (Patton, 2002). In this study, interviews, field notes, journals, memos were used to triangulate data. In addition, peer debriefing is the process of expressing (sharing) one's thoughts and feelings about the research to others (Patton, 2002). In this study, ongoing conversation with study author's adviser assisted her by increasing her awareness of her biases and her personal perspective.

For the findings of qualitative research to be credible, the findings should demonstrate how they fit well with the data (Glazer & Strauss, 1967). One way to demonstrate it is to use thick description and provide detailed quotes from the participants. Thick description offers contextual details and the quotes allow the readers to check whether study author has accurately interpreted the participants' views. She aligned her interpretations with quotes from the Korean immigrant women in this study through the analysis process.

Ethical Consideration

To insure high ethical standards of the current study, study author addressed specific ethical considerations. First, this study complied with the requirements of the Human Subjects Institutional Review Board (IRB) as well as Cancer Protocol Review Committee at the University of Minnesota. The procedure of the current study was approved by the IRB and Cancer Protocol Review Committee prior to any contact with potential participants. This study had minimal risk for the study participants.

Each participant was informed that their participation was voluntary and that they could withdraw at any time without consequence. Confidentiality was maintained throughout the process of the study. Confidentiality was addressed in the consent form. All data including informed consents, paper questionnaires, de-identified data, audio files, transcribing data, and filed notes were stored in password-protected files or in a locked file cabinet. Data analysis was conducted on a password-protected computer.

Despite the minimal harms of this study, potential issues or harm as a result of the study were monitored and addressed concerns as needed.

Chapter Five

Results from Quantitative Study

This section consists of participants' sociodemographic characteristics, their beliefs about breast cancer and breast cancer screening, their screening experience including screening rates, and facilitators and barreirs to screening.

Participants' Socio-Demographic and Health Characteristics

Table 1 and Table 2 shows participants' socio-demographic and health characteristics. The mean age of all participants was 58.58 years (SD=11.31). On average, they had lived in the U.S. for 23.12 years (SD=10.99) and their mean age at the time of immigration to the U.S. was 35.36 (SD=10.94). About two-thirds (68%) of the participants were married or partnered. Approximately 3.8% identified as single, 14.6% stated they were widowed, and 13.7% indicated that they were divorced. Nearly two-thirds (67.3%) completed colleges or university, or graduate school. About 26.5%, 4.7%, and 1.4% completed high school, middle school, and elementary school, respectively. Around half (47.4%) of the participants were currently employed, 6.6% and 35.1% were unemployed and retired respectively. About 1.4% was disabled and 9.5% marked to others. Around one-third (34.5%) reported their income was less than $25,000. Approximately 23.6% earned $25,000 - $ 49,999, 17.7% $50,000 - $74,999, 6.4% $75,000 - $94,999, and 17.7% $95,000 more. Most participants (89.6%) reported having health insurance. Of these women, 32.5% and 36.8% obtained insurance through Medicare and Medi-Cal, respectively. About 16% had employer insurance and 24.5% purchased their own plan. More than three-quarters (77.8%) attended regular check-up and 74.5% stated that they had a primary care provider (e.g. a doctor or nurse practitioner

they visited for their ongoing care). About 47.2%, 35.8%, and 6.1% reported that their health was fair, good or very good, respectively. Only 9% reported that their health was poor and 1.9% was excellent. Approximately half (51.9%) of the participants had one or more chronic diseases. More than one-third (38.3%) of the participants had a family history of cancer.

Table 1. Socio-Demographics for Continuous Variables (N =212)

	Mean	*SD*	Min	Max
Age	58.58	11.31	40	79
Years Living in the U.S.	23.12	10.99	1	50
Age at the Time of Immigration to the U.S.	35.36	10.94	18	68

Table 2. Socio-Demographics for Categorical Variables (N=212)

Variables	Categories	*n* (%)
Age	40-49	57 (26.9%)
	50-59	49 (23.1%)
	60-69	60 (28.3%)
	70-79	46 (21.7%)
Marital Status	Single (never married)	8 (3.8%)
	Divorced	29 (13.7%)
	Widowed	31 (14.6%)
	Married or partnered	144 (68%)
Highest Level of Education (*N* =211)	Completed elementary school	3 (1.4%)
	Completed middle school	10 (4.7%)
	Completed high schools	56 (26.5%)
	Completed colleges or universities	123 (58.3%)
	Completed graduate schools	19 (9%)
Employment (*N* =211)	Full-time	68 (32.2%)
	Part-time	32 (15.2%)
	Unemployed	14 (6.6%)
	Retired	74 (35.1%)
	Disabled	3 (1.4%)
	Other	20 (9.5%)

Annual Household Income (*N*=203)	Less than $25,000	70 (34.5%)
	$25,000 - $49,999	48 (23.6%)
	$50,000 - $74,999	36 (17.7%)
	$75,000 - $94,999	13 (6.4%)
	$95,000 - $104,999	13 (6.4%)
	$105,000 - $124,999	11 (5.4%)
	$125,000 or more	12 (5.9%)
Health Insurance	No	22 (10.4%)
	Yes	190 (89.6%)
Types of health insurance	Medicare	69 (32.5%)
	Medical	78 (36.8%)
	Insurance by employer	34 (16%)
	Personal health insurance	52 (24.5%)
	Others	3 (1.4%)
Regular Check-up	No	47 (22.2%)
	Yes	165 (77.8%)
Primary Care Provider	No	54 (25.5%)
	Yes	158 (74.5%)
Health Status	Poor	19 (9%)
	Fair	100 (47.2%)
	Good	76 (35.8%)
	Very Good	13 (6.1%)
	Excellent	4 (1.9%)
Chronic Disease	No	102 (48.1%)
	Yes	110 (51.9%)
Family cancer history (*N* =206)	No	115 (55.8%)
	Don't know/Not sure	12 (5.8%)
	Yes	79 (38.3%)

Beliefs and Attitudes about Breast Cancer and Breast Cancer Screening

Study participants' beliefs and attitudes about breast cancer and breast cancer screening are described in two parts: cultural aspects of cancer and cancer screening and their health beliefs of breast cancer and breast cancer screening.

Cultural aspects of cancer and cancer screening. This section is to understand how Korean immigrant women's cultural aspects such as fatalism and preventive health

orientation influence their views on cancer and cancer screening. As detailed in Table 3, study participants held high levels of fatalistic views on cancer. To be specific, about half (50%) of the participants agreed or strongly agreed the best way to deal with cancer is accept that they are diagnosed with cancer. Approximately 46.7% agreed or strongly agreed that the best way was not to think about cancer because they would get cancer if they thought about it too much. Approximately 33.9% agreed or strongly agreed that they would get cancer if they were meant to get it and 33% agreed or strongly agreed they will have cancer regardless of what they do. About 27% agreed or strongly agreed avoiding cancer was a matter of personal luck and 25% of the participants agreed or strongly agreed health or illness was a matter of fate. Around a third (35.4%) of the participants agreed or strongly agreed that they could not control their destiny. Only 16.5% agreed or strongly agreed that cancer was hard to prevent and a mere 13.2% agreed or strongly agreed that getting cancer was like being sentenced to death.

Table 3. Descriptive Analysis on Fatalism (N=212)

	Statement	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
1	I cannot control my destiny.	42 (19.8%)	95 (44.8%)	60 (28.3%)	15 (7.1%)
2	Health or illness is a matter of fate. Some people are always healthy and other get sick very often.	59 (27.8%)	100 (47.2%)	44 (20.8%)	9 (4.2%)
3	Avoiding cancer is a matter of personal luck.	66 (31%)	89 (42%)	53 (25.1%)	4 (1.9%)
4	If I am meant to get cancer, I will get it.	54 (25.5%)	79 (37.3%)	71 (33.5)	8 (3.8%)
5	No matter what I do, if I am going to get cancer, I will get it.	50 (23.6%)	92 (43.4%)	67 (31.6%)	3 (1.4%)

	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
6	It is hard to prevent cancer.	63 (29.7%)	114 (53.8%)	31 (14.6%)	4 (1.9%)
7	Getting cancer is like being sentenced to death.	65 (30.7%)	119 (56.1%)	24 (11.3%)	4 (1.9%)
8	If we get cancer, the best way to deal with it is to accept it, just like the old saying "listen to heaven and follow fate".	47 (22.2%)	59 (27.8%)	90 (24.5%)	16 (24.5%)
9	It is best not to think about cancer. If we think about it too much, we probably will get cancer.	43 (20.3%)	70 (33%)	85 (40.1%)	14 (6.6%)

It is quite known that Korean immigrants have a lack of preventive health orientation, meaning that they are accustomed to getting health care services when symptoms were present, or when they could not tolerate symptoms any longer. However, current study participants reported to have high levels of preventive health orientation as seen in Table 4. Most participants recognized the necessary of having regular check-up, despite feeling well and healthy, actively pursuing a healthy life-style, and has no current health issues. To be specific, almost participants (89.7%) strongly disagreed or disagreed that they did not need to have a health check-up if they felt well. Similarly, 86.7% strongly disagreed or disagreed that they did not feel the necessity to have a regular check-up if they followed a healthy life style.

Table 4. Descriptive Analysis on Preventive Health Orientation (N=212)

	Statement	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
1	If I feel well, it is not necessary to have a health check-up.	65 (30.6%)	125 (59%)	18 (8.5%)	4 (1.9%)
2	If I follow a healthy life style such as balanced diet and regular exercise, I do not feel it is necessary to have a regular check-up.	64 (30.2%)	120 (56.5%)	26 (12.3%)	2 (9%)
3	I see a doctor or have my health check-up only when I have a health problem.	27 (12.7%)	100 (47.3%)	69 (32.5%)	16 (7.5%)
4	If I feel healthy, I do not need to see the doctor.	43 (20.3%)	126 (59.4%)	37 (17.5%)	6 (2.8%)

Health beliefs of breast cancer and breast cancer screening. This section is to understand Korean immigrant women's health beliefs such as perceived susceptibility, perceived benefits, perceived barriers, and self-efficacy.

Perceived susceptibility to breast cancer. Almost all participants believed that they were not susceptible to breast cancer. This relates to participants' perceived risk to breast cancer and their beliefs about the causes of breast cancer. Table 5 shows participants' perceived susceptibility to breast cancer. Approximately 92.9% strongly disagreed or disagreed to great chance of getting breast cancer in the next few years and 92.9% strongly disagreed or disagreed to get breast cancer in their lifetime. Similarly, 89.1% indicated strongly disagree or disagree to getting breast cancer and only 8-10% participants thought they might have a chance of getting breast cancer.

Table 5. Descriptive Analysis on Perceived Susceptibility (N=212)

	Statement	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
1	It is likely that I will get breast cancer.	45 (21.2%)	144 (67.9%)	21 (9.9%)	2 (1%)
2	My chances of getting breast cancer in the next few years are great.	53 (25%)	144 (67.9%)	14 (6.6%)	1 (0.5%)
3	I feel I will get breast cancer sometime during my life.	67 (31.6%)	130 (61.3%)	12 (5.7%)	3 (1.4%)

Beliefs to effectiveness of mammography screening. As noted earlier, having regular breast cancer screenings are recommended for the timely detection and treatment of breast cancer. Table 6 shows study participants' beliefs about the efficacy of mammography. Overall, most participants believed that mammography had the ability to detect breast cancer if it is present. Approximately 91.9% agreed or strongly agreed that having a mammogram would help to find breast lumps early. Most participants (87.7%) indicated that having a mammogram would reduce their chances of dying from breast cancer. About 84% showed that the treatment for breast cancer might not be bad if breast lumps were detected via a mammogram. Around 21.2% strongly disagreed or disagreed that having a mammogram is the best way to find small lump, while 78.8% agreed or strongly agreed. Two thirds of the participants (67%) agreed or strongly agreed that they would not worry about breast cancer if they received a negative mammogram result (no sign of cancer), while one-third (33%) indicated they would still worry about breast cancer if mammogram results found no signs of cancer.

Table 6. Descriptive Analysis on Perceived Benefits (N=212)

	Statement	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
1	If I get a mammogram and nothing is found, I do not worry as much about breast cancer.	9 (4.2%)	61 (28.8%)	134 (63.2%)	8 (3.8%)
2	Having a mammogram will help me find breast lumps early.	5 (2.4%)	12 (5.7%)	172 (81.1%)	23 (10.8%)
3	If I find a lump through a mammogram, my treatment for breast cancer may not be as bad.	4 (1.9%)	30 (14.2%)	164 (77.4%)	14 (6.6%)
4	Having a mammogram is the best way for me to find a very small lump.	6 (2.8%)	39 (18.4%)	149 (70.3%)	18 (8.5%)
5	Having a mammogram will decrease my chances of dying from breast cancer.	5 (2.4%)	21 (9.9%)	158 (74.5%)	28 (13.2%)

Perceived barriers and self-efficacy to breast cancer screening. Table 7 shows participants' perceptions on barriers toward mammography screening. Unnecessary radiation exposure was the most frequently reported barrier, whereas transportation was the least frequently reported barrier. Fifty percent of the participants agreed or strongly agreed that they were exposed to unnecessary radiation through having a mammogram. Only 5.7% had unreliable transportation to get a mammogram. Other barriers frequently noted were forgetfulness to schedule a mammogram, pain, embarrassment, and language issues. Approximately one third (34.9%) agreed or strongly agreed that they could not remember to schedule a mammogram. About 30.7% agreed or strongly agreed with physical pain during the mammogram and 30.2% reported embarrassment. Nearly 30.2% agreed or strongly agreed with fear due to a lack of communication in English with their physician. Participants also indicated taking too much time to get a mammogram (29.7%), lack of information on how to go about getting a mammogram (26.9%), fear about-x-ray

results (21.3%), low priority (23.6%), being old (17.5%), and cost (17.4%) as the barriers to get a mammogram.

Table 7. Descriptive Analysis on Perceived Barriers (N=212)

	Statement	Strongly Disagree N (%)	Disagree N (%)	Agree N (%)	Strongly Agree N (%)
1	I am afraid to have a mammogram because I might find out something is wrong.	60 (28.3%)	107 (50.5%)	44 (20.8%)	1 (0.5%)
2	I am afraid to get a mammogram because I do not understand what will be done.	58 (27.4%)	137 (64.6%)	15 (7.1%)	2 (0.9%)
3	I do not know how to go about getting a mammogram.	51 (24.1%)	104 (49.1%)	51 (24.1%)	6 (2.8%)
4	Having a mammogram is too embarrassing.	47 (22.2%)	101 (47.6%)	58 (27.4%)	6 (2.8%)
5	Having a mammogram takes too much time.	38 (17.9%)	111 (52.4%)	57 (26.9%)	6 (2.8%)
6	Having a mammogram is too painful.	38 (17.9%)	109 (51.4%)	54 (25.5%)	11 (5.2%)
7	People doing mammograms are rude to women.	49 (23.1%)	146 (68.9%)	15 (7.1%)	2 (0.9%)
8	Having a mammogram exposes me to unnecessary radiation.	23 (10.8%)	83 (39.2%)	97 (45.8%)	9 (4.2%)
9	I cannot remember to schedule a mammogram.	40 (18.9%)	98 (46.2%)	66 (31.1%)	8 (3.8%)
10	I have other problems more important than getting a mammogram.	43 (20.3%)	119 (56.1%)	46 (21.7%)	4 (1.9%)
11	I am too old to need a routine mammogram.	48 (22.6%)	127 (59.9%)	30 (14.2%)	7 (3.3%)
12	I am afraid that I may not communicate well with a physician in English.	44 (20.8%)	104 (49.1%)	56 (26.4%)	8 (3.8%)
13	I have not been able to get a mammogram because of my financial situation or my insurance status.	54 (25.5%)	121 (57.1%)	35 (16.5%)	2 (0.9%)
14	It has been difficult to get mammograms because I do not have reliable transportation to a clinic.	71 (33.5%)	129 (60.9%)	12 (5.7%)	0

Table 8 shows participants' beliefs about their ability to deal with a variety of barriers to get a mammogram. Participants reported high levels of confidence to get a mammogram if they were willing to get it such as arranging their schedules, while they showed the least confidence in cost, information to get a mammogram (e.g., place to get a mammogram), and communication with staffs at the mammogram center. To be specific, participants showed high levels of confidence in getting a mammogram despite being worried (94.4%), if they were unsure what to expect (92.4%), and if they felt the need to get one (92.9%). The participants felt mildly confident or confident to arrange their personal schedules (82.9%) to get a mammogram. On the other hand, participants showed a lack of confidence in other barriers. Approximately 17.9% participants felt unconfident or mildly unconfident in finding a way to pay for mammogram. About 13.2% felt unconfident or mildly unconfident in accessing resources in getting a mammogram and 15.1% reported uncertainty where to find health clinics to complete a mammogram. These imply that there are barriers to getting a mammogram, includeing the cost, finding resources or information on mammogram, finding health clinics to complete a screening, and inability to maintain communication with English-speaking health providers.

Table 8. Descriptive Analysis on Self-Efficacy (N=212)

	Statement	Unconfident N (%)	Mildly Unconfident N (%)	Mildly Confident N (%)	Confident N (%)
1	I can arrange transportation to get a mammogram.	7 (3.3%)	5 (2.4%)	36 (17%)	164 (77.4%)
2	I can arrange other things in my life to have a mammogram.	7 (3.3%)	9 (4.2%)	45 (4.2%)	151 (71.2%)

3	I can talk to people at the mammogram center about my concerns.	5 (2.4%)	21 (9.9%)	72 (34%)	114 (53.8%)
4	I can get a mammogram even if I am worried.	2 (0.9%)	10 (4.7%)	51 (24.1%)	149 (70.3%)
5	I can get a mammogram even if I do not know what to expect.	5 (2.4%)	11 (5.2%)	48 (22.6%)	148 (69.8%)
6	I can find a way to pay for a mammogram.	10 (4.7%)	28 (13.2%)	50 (23.6%)	124 (58.5%)
7	I can make an appointment for a mammogram.	6 (2.8%)	20 (9.4%)	50 (23.8%)	136 (64.2%)
8	I know for sure I can get a mammogram if I really want to.	2 (0.9%)	13 (6.1%)	42 (19.8%)	155 (73.1%)
9	I know how to go about getting a mammogram.	12 (5.7%)	16 (7.5%)	45 (21.2%)	139 (65.6%
10	I can find a place to have a mammogram.	10 (4.7%)	22 (10.4%)	44 (20.8%)	136 (64.2%)

Breast Cancer Screening Experience

This section includes breast cancer screening rates, their screening experiences, as well as facilitators and barriers to breast cancer screening.

Breast cancer screening rates. Table 9 shows the breast cancer screening rates based on age and timeframe. Approximately 90.1% of the participant granted having a mammogram at least once in their life time and 9.9% were never screened. About, 21.2% had completed a mammogram annually, 41% completed a mammogram once every 1-2 years, 11.3% completed a screening between 2-3 years, and 15.6% completed a screening 3-4 years ago. Analysis by age cohorts indicated that women ages 60-69 years old had the highest mammogram rate (73.3%) while women ages 40-49 years old had the lowest mammogram rate (26.3%).

Table 9. Receipt of Breast Cancer Screening by Age and Time Frame (N=212)

Years of recent mammogram	Age				All
	40-49 (*n*=57)	50-59 (*n*=49)	60-69 (*n*=60)	70-79 (*n*=46)	
Year ≤ 1	10 (17.5%)	13 (26.5%)	11 (18.3%)	11 (23.9%)	45 (21.2%)
1 < Year ≤ 2	18 (31.6%)	21 (42.9%)	33 (55%)	15 (32.6%)	87 (41.0%)
2 < Year ≤ 3	6 (10.5%)	1 (2.0%)	9 (15.0%)	8 (17.4%)	24 (11.3%)
Year > 3	9 (15.8%)	9 (18.4%)	7 (11.7%)	10 (21.7%)	35 (16.5%)
Sub Total (Ever Had)	43 (75.4%)	44 (89.8%)	60 (100%)	44 (95.7%)	191 (90.1%)
Never screened	14 (24.6%)	5 (10.2%)	0	2 (4.3%)	21 (9.9%)
Total	57(100%)	49 (100%)	60 (100%)	46 (100%)	212 (100%)

Among 191 participants who had a mammogram in their lifetime, 183 participants reported when they initiated their first mammogram. Approximately 68.3% initiated their first mammogram in their 40s or 50s. Less than half of the participants (45.3%) had their first mammogram in their 40s and 22.9% had in their 50s. About 18.6% reported to have the first mammogram under 39 years old and 10.4% had in their 60s. A mere 2.7% had their first mammogram over 70 years old. Almost two thirds (68.6%) had their first mammogram in the U.S., while 30.4% had in them Korea. Interestingly, around 28% participants had a mammogram in Korea after they immigrated in the U.S. About half of participants (52%) knew about free or low cost mammogram services and among these participants 63.1% had actually experienced a screening through the mammogram service(s) they heard about.

Overall experience with mammogram(s). Almost all participants (92.2%) reported they had a positive or very positive experience with mammogram(s) among those who had a mammogram in their lifetime, whereas 7.8% had a negative or very negative experience. Less than a quarter (24.1%) had follow-up tests after completing a mammogram. Participants shared their experiences with mammogram(s) during individual interviews, which provided reasons/contexts for each participant's positive and negative experience with a mammogram. Participants commonly mentioned they felt discomfort and experienced physical pain during the screening.

Most participants (88.2%) reported hearing mammogram experiences from family, friends, or neighborhoods. Only 11.2% of their family, friends, or neighborhoods described their experience with a mammogram as negatively or very negatively, meanwhile 88.2% did positively or very positively. About 78.1% of the participants

reported these experiences helped them to form decisions about completing or not having a mammogram.

Predictors Facilitators and Barriers to Breast Cancer Screening

Bivariate analysis of breast cancer screening. Independent sample t-tests and Chi-square tests were conducted to examine the relationships between each of the variables and the receipt of mammogram within 2 years. In addition, Pearson correlation coefficients were computed among continuous variables. Neither a strongly positive nor negative correlated relationship among the variables was found at a statistically significant level.

Table 10 contains the results of independent sample t-tests. Among the predisposing factors, fatalism was found to correlate with the receipt of mammogram within 2 years at a statistically significant level. Those women who had higher scores on fatalism tended to have a mammogram within 2 years (M = 19.48, SD = 4.35) than those who lower scores (M = 17.94, SD = 4.47), t (210) = - 2.47, p = .014). Regarding enabling variables, breast cancer screening knowledge, perceived barriers, and self-efficacy had a statistically significant relationship to receipt of mammogram within 2 years. To be specific, participants who had higher scores of breast cancer screening knowledge tended to have a mammogram within 2 years (M = 4.83, SD = 1.81) than those who had lower scores (M = 3.90, SD = 2.09), t (210) = - 3.43, p = .001). Results also indicate that women who had less perceived barriers (M = 27.55, SD = 5.59) were more likely to have a mammogram within 2years than those who had more perceived barriers (M = 30.19, SD = 5.25), t (210) = - 2.47, p = .001). Participants who had higher level of self-efficacy were more likely to get a mammogram (M = 36.08, SD = 4.80) than those who had a

lower level of self-efficacy (M = 34.08, SD = 5.49), t (210) = - 2.73, p = .007). No need factor was found to correlate with mammogram uptake within 2 years.

Table 10. Results of Independent Sample T-test (N =212)

	Receipt of mammogram within 2 years				t-value
	No		Yes		
	Mean	*SD*	Mean	*SD*	
Predisposing Factors					
Age	57.44	12.84	59.27	10.27	-1.08
Fatalism	17.94	4.47	19.48	4.35	-2.47*
Preventive Health Orientation	11.66	2.41	12.15	2.06	-1.57
Enabling Factors					
Breast Cancer Screening Knowledge	3.90	2.09	4.83	1.81	-3.43***
Perceived Susceptibility	5.39	1.46	5.57	1.51	-0.85
Perceived Benefits	14.35	1.49	14.41	2.23	-0.23
Perceived Barriers	30.19	5.25	27.55	5.59	3.40***
Self-Efficacy	34.08	5.79	36.08	4.80	-2.73**
Need Factor					
Number of Chronic Disease	0.73	0.99	0.76	.82	-0.25

Note. *p <.05, **p < .01, ***$p \leq 001$

Table 11 contains the results of Chi-square tests. One predisposing factor, portion of life spent in the US, was found to correlate with the receipt of mammogram within 2 years at a statistically significant level (χ^2 [2, 212] = 5.28, p =.022). Only two enabling factors, regular check-up (χ^2 [2, 212] = 27.10, p =.000) and heard about mammogram experience (χ^2 [2, 212] = 21.55, p = .000) had a significant relationship to their mammogram uptake within 2 years. In other words, participants who had a regular check-up likely had a mammogram within 2 years than those who did not. Findings also indicated that participants who heard about mammogram experiences from their family, friends, or neighbors tended to have a mammogram within 2 years than those who never heard about others' mammogram experiences. None of the need factors was found to correlate with the receipt of mammogram within 2 years at a statistically significant level.

Table 11. Results of Chi-square Test (N =212)

		Receipt of mammogram within 2years		χ^2
		No	Yes	
Predisposing Factor				
Portion of life spent in the US	Less than 25%	21 (53.8%)	18 (46.2%)	5.28*
	More than 25%	59 (34.1%)	114(65.9%)	
Education	High school grad or less	24 (34.8%)	45 (65.2%)	0.31
	At least college	55 (38.7%)	87 (61.3%)	
Enabling Factors				
Regular Check-up	No	33 (70.2%)	14 (29.8%)	27.10***
	Yes	47 (28.5%)	118 (71.5%)	
Heard about Mammogram Experience	No	20 (80.0%)	5 (20.0%)	21.55***
	Yes	60 (32.1%)	127 (67.9%)	
Need Factor				
Family Cancer History	No	52 (41.3%)	74 (58.7%)	3.31^{+}
	Yes	23 (28.8%)	57 (71.3%)	

Note. $+p < .07$, $*p < .05$, $***p < .001$

Table 12 shows the Pearson correlation coefficient among continuous variables. Neither a strongly positive nor negative relationship among the variables was found at a statistically significant level. A few variables were moderately (r = - 0.5 to - 0.3 or 0.3 to 0.5) or weakly (r = - 0.3 to - 0.1 or 0.1 to 0.3) correlated. For example, age was moderately positively correlated with a number of chronic diseases [r (212) = .44, p = .00] and weakly correlated with fatalism [r (212) =.18, p = .01], which implies that older women tended to have more chronic disease or hold fatalistic view. Findings indicated that fatalism has a weak negative relationship with preventive health orientation [r (212) = - .22, p = .001] and a weak positive relationship with perceived susceptibility [r (212) = .24, p = .00], number of chronic diseases [r (212) = .22, p = .002], perceived barriers [r (212) =.16, p = .02] and perceived benefits [r (212) = .14, p = .039]. This implies that those who hold a higher level of fatalistic views were less likely to be aware of preventive health orientation, more likely to be susceptible to breast cancer, more likely to have chronic disease and perceived barriers to mammogram uptake, or more likely to understand benefits of breast cancer screening. Results also indicated that preventive health orientation was moderately negatively correlated with perceived barriers [r (212) = - .41, p = .00], moderately positively correlated with self-efficacy [r (212) = .33, p= .00], and weakly positively correlated with breast cancer screening knowledge [r (212) = .20, p = .003]. This implies that those who had a higher level of preventive health orientation have less perceived barriers to mammogram uptake, high level of self-confidence to get a mammogram, or more knowledge of breast cancer screening. Breast cancer screening knowledge was weakly positively correlated with perceived benefits [r (212) = .28, p = .00] and self-efficacy [r (212) = .20, p = .004], while weakly negatively correlated with

perceived barriers [r (212) = - .18, p = .011]. This indicated that those who had more knowledge of breast cancer screening were more likely to understand benefits of breast cancer screening and to have self-confidence to get a mammogram, while less likely to have perceived barriers. Perceived susceptibility had weak positive relation with perceived barriers [r (212) =.16, p = .021], which indicated that those who were more susceptible to breast cancer tended to have more perceived barriers to mammogram uptake. Perceived barriers were moderately negatively correlated with self-efficacy [r (212) = - .39, p = .00], which implied that those who had more perceived barriers were less likely to have self-confidence to get a mammogram.

Table 12. Correlation Matrix among Continuous Variables

	Age	Fatalism	Preventive Health Orientation	Breast Cancer Screening Knowledge	Perceived Susceptibility	Perceived Benefits	Perceived Barriers	Self-Efficacy	Number of Chronic Disease
Age	1								
Fatalism	.178**	1							
Preventive Health Orientation	.079	-.223**	1						
Breast Cancer Screening Knowledge	.074	.038	.201**	1					
Perceived Susceptibility	-.021	.239**	-.021	.044	1				
Perceived Benefits	.040	.142*	.027	.284**	-.011	1			
Perceived Barriers	-.073	.160*	-.408**	-.175*	.158*	-.058	1		
Self-Efficacy	.105	-.011	.332**	.196**	-.121	.126	-.390**	1	
Number of Chronic Disease	.435**	.217**	-.077	-.046	.021	.054	.019	-.021	1

Note. *p <.05, **p < .01

Predictors of breast cancer screening. As noted earlier, a three-step regression model was conducted to examine the relative influence of potential predictors of breast cancer screening: (1) predisposing factors only, (2) predisposing and enabling factors, and (3) predisposing, enabling, and need factors.

Table 13 summarizes the results of binary logistic regression for mammogram uptake within two years. Model 1 indicates that portion of life spent in the US (OR = 2.45, 5.10, p = .017) and fatalism (OR = 1.10, p = .011) predicted having a mammogram in two years. Women who resided in the U.S more than 25% in their life were more likely get a mammogram in the past 2 years than those resided less than 25%. Interestinly, women who had high levels of fatalism tended to get screended in the past 2 years than those had low levels of fatalism. In Model 2, fatalism (OR = 1.16, p = .002) remained significant, while portion of life spent in the US was not significant. Model 2 further illustrates that various enabling factors such as regular check-up (OR = 7.47, p = .000), heard about mammogram experience (OR = 7.22, p = .003), and perceived barriers (OR = 0.87, p = .001) were significant predictors of mammogram receipt in the past two years. In the final model, which includes all three sets of factors from the previous models, fatalism (OR = 1.16, p = .001), regular check-up (OR = 7.31, p = .000), heard about mammogram experience (OR = 7.02, p = .004), and perceived barriers (OR =0.87, p = .001) still uniquely contributed. Interestingly, no needs factors significantly predicted mammogram receipt within 2 years. Thus, a high level of fatalism was weakly correlated with screening uptake in the past 2 years. Also, having a regular check-up and hearing about mammogram experience from family, friends, and neighbor was strongly associated with having a mammogram within 2 years respectively. In addition, perceived barriers to

breast cancer screening were negatively associated with getting a mammogram within 2 years. In summary, it is notable that having a regular check-up and hearing about mammogram experience made slightly less contribution compared to the second model in the presence of need factors. However, fatalism and perceived barriers did the same contribution.

Table 13. Binary Logistic Regression Analysis for Variables Predicting Mammogram Uptake (N = 205)

Factors	Variables	Model 1			Model 2			Model 3		
		B	S.E.	OR (95% CI)	B	S.E.	OR (95% CI)	B	S.E.	OR (95% CI)
Predisposing	Age	0	0.02	1.00 (0.97, 1.03)	-0.03	0.02	0.97 (0.93, 1.01)	-0.03	0.02	0.97 (0.93, 1.01)
	Portion of life spent in the US	0.90*	0.37	2.45 (1.18,5.10)	0.57	0.44	1.78 (0.75, 4.20)	0.62	0.45	1.86 (0.77, 4.46)
	Education	-0.02	0.36	0.98 (0.48, 1.99)	-0.12	0.42	0.89 (0.39, 2.03)	-0.14	0.42	0.87 (0.38, 2.00)
	Fatalism	0.09**	0.04	1.10 (1.02, 1.18)	0.15***	0.05	1.16 (1.06, 1.27)	0.15***	0.05	1.16 (1.06, 1.27)
	Preventive Health Orientation	0.14	0.07	1.14 (0.99, 1.32)	-0.09	0.09	0.91 (0.76, 1.09)	-0.09	0.09	0.91 (0.76, 1.09)
Enabling	Regular Check-up				2.01***	0.47	7.47 (2.95, 18.90)	1.99***	0.47	7.31 (2.89, 18.53)
	Heard about Mammogram Experience				1.98**	0.67	7.22 (1.96, 26.61)	1.95**	0.67	7.02 (1.89, 26.03)
	Breast Cancer Screening Knowledge				0.10	0.10	1.10 (0.91, 1.33)	0.09	0.10	1.09 (0.90, 1.33)
	Perceived Susceptibility				0.09	0.12	1.09 (0.86, 1.39)	0.07	0.12	1.07 (0.84, 1.37)
	Perceived Benefits				-0.06	0.09	0.95 (0.80, 1.12)	-0.05	0.09	0.95 (0.80, 1.14)
	Perceived Barriers				-0.14***	0.04	0.87 (0.81, 0.95)	-0.14***	0.04	0.87 (0.80, 0.94)
	Self-Efficacy				-0.01	0.04	0.99 (0.92, 1.07)	-0.02	0.04	0.98 (0.91, 1.06)
Need	Number of Chronic Disease							0.03	0.23	1.03 (0.65, 1.63)
	Family Cancer History							0.46	0.39	1.58 (0.74, 3.39)
	Chi-Square			15.027**			61.870***			63.331***
	-2 Log likelihood			253.104			206.261			204.800
	Nagelkerke R Square			.097			.357			.364

*$p \leq .05$. **$p \leq .01$. ***$p \leq .001$

Notes: Portion of life spent in the US (reference group: length of residence less than 25%), education (reference group: high school graduate or less), regular check-up (reference group: no), heard about mammgoram experience (reference group: no), and family cancer history (reference group: no)

Chapter Six

Findings from Qualitative Study

The findings from the qualitative data analysis comprehensively describe the participants' views on breast cancer and breast cancer screening, as well as how their view on breast cancer influence their breast cancer screening behavior. The findings also describe particpants' challenges to and motivation for breast cancer screening. The findings of the qualitative study provide rich contexts to understand the results of quantitative study.

Participants' Socio-Demographic and Health Characteristics

Table 14 shows study particpants' socio-demographic and health characteristics. The mean age of all particpants was 55.80 years (SD = 10.00). On average, they lived in the U.S. for 23.20 years (SD = 11.78) and their mean age at the time of immigration to the U.S. was 32.20 (SD = 9.29). Approximately two-thirds (65%) completed a college or university, 20% completed high school, and 15% completed graduate school. Almost all participants (90%) had health insurance and around 75% had regular check-ups. Around 65% of the participants have a family history of cancer.

As noted earlier, study participants were categorized into three groups. Compared to group 3, participants in group 1 had at least 8 times more screening experiences and they had a mammogram every year. Participants in group 2 had at least 2 times more screening experiences and had a mammogram every two, three, or four years. Both participants in group 1 and 2 had a mammogram in the past 2 years. Participants in group 3 had a mammogram irregularly and no a mammogram within 2 years.

Table 14. Socio-Demographic and Health Characteristics of the Qualitative Study Participants

		Last Name*	Age	Education	Years in the U.S.	Health Insurance	Regular Checkup	Number of Screening	First mammogram	Recent mammogram	Family History of Cancer
[Group1] Every year	1	Park	48	Grad	30	16	Yes	8	40	2016	Yes
	2	Min	59	College/Uni	26	no	no	15	45	2015	Yes
	3	Cho	60	College/Uni	42	42	Yes	16	35	2015	Yes
	4	Lee	68	College/Uni	40	36	Yes	10	45	2016	No
[Group2] Every three or more year	1	Jung	44	Grad	14	8	Yes	2	36	2016	No
	2	Yun	46	College/Uni	15	10	Yes	2	41	2014	No
	3	Hwang	46	High	29	1~2	Yes	2	43	2016	Yes
	4	Oh	48	High	16	15	Yes	5	33	2015	Yes
	5	Baek	52	College/Uni	16	2	no	6	35	2015	Yes
	6	Sung	60	College/Uni	5	4	Yes	4	50	2015	Yes
	7	Hyun	71	College/Uni	26	10	Yes	4	60	2014	No
	8	Hong	69	High	41	2	Yes	5	50	2014	Yes
[Group3]	1	Shin	40	College/Uni	5	no	no	6	27	2011	No
	2	Kim	44	College/Uni	20	4	no	1	40	2012	Yes
	3	Dong	53	Grad	28	3	Yes	2	48	2011	Yes
	4	Bo	54	College/Uni	10	1	Yes	3	35	2004	No
	5	Im	55	College/Uni	22	4	Yes	2	38	2001	Yes
	6	Moon	60	College/Uni	30	30	Yes	5	30	2013	Yes
	7	Chung	65	High	18	6	Yes	2	50	2010	No
	8	Jeon	74	College/Uni	43	10	Yes	4	60	2013	Yes

Note: *Study participants' last name was made up for current study

Views on Breast Cancer

Korean immigrant women viewed breast cancer as a fearful subject. Study participants reported having different levels and concerns about breast cancer. At the same time, majority of the participants strongly believed that breast cancer could be preventable, meanwhile, having different opinions on ways to prevent breast cancer.

Fear of breast cancer. Study participants commonly reported fears related to breast cancer, including fear of getting breast cancer, fear of losing femininity, fear of treatment procedure, and fear of recurrence and death. Overall, participants in group 1 and 2 reported to have a higher level of fear of breast cancer, which motivated them to keep screening on a regular basis or initiate their first mammgoram. On the other hand, particpants in group 3 had low fear compared to those who were in group 1 and 2.

Fear of getting breast cancer. Some participants (n=7) from group 1 and group 2 believed that they were not safe from breast cancer. They reported cancer as a common disease in the Korean American community and currently Korean immigrants are commonly diagnosed with cancer. They had family member with cancer and/or knew other Korean families who had or have a cancer patient. Knowing other people with cancer influenced participants to assume they are not an exception from cancer. Knowing more cancer patients, they began to develop fears of having breast cancer which increased their awareness of breast cancer and breast cancer screening. A few participants (n=4) reported that they were open to the possibility of having cancer (breast or cervical) in the future based on their gender.

For example, Mrs. Yun reported there is a chance of her having breast cancer in the future since she is surrounded by people who are diagnosed with breast cancer.

> Mrs. Yun: If someone was sick, it mostly turned out that she has cancer. Women tended to have breast or cervical cancer, while men were more likely to have stomach, lung, or pancreas cancer. So many people were diagnosed with cancer, which made me feel scared. Even though I do not have a family history of cancer, I sometimes think that I may have breast cancer or cervical cancer because I am a woman. I guess there are many women with similar thoughts as me.

Participants' fear of being diagnosed with breast cancer doubled when they had risk factors for breast cancer such as lack of breastfeeding experience, having dense/lumpy breasts, having a family history with cancer, and symptoms of breast cancer. Their fear of chances to getting breast cancer made them participate in regular mammography. For instance, Mrs. Oh reported having anxiety about getting breast cancer. Mrs. Oh's anxiety increased as she heard stories of women having breast cancer because she wasn't unable to produce enough breast milk for her child. Plus, she has dense breasts, which is a risk factor for breast cancer. To reduce her anxiety of having breast cancer, she made sure to get a mammogram every other year.

> Mrs. Oh: I am getting worried about having breast cancer whenever I hear that someone has breast cancer. I have one child but I was not able to breastfeed enough at that time. These days, I heard that single women with a history of lower breastfeeding are at a higher risk of getting breast cancer. I breast-fed for a short period of time. This increases my concern. Also, I have dense breast tissues. I knew it after I had a mammogram in the past. So, I was really concerned whenever I felt discomfort in my breasts. This is why I have a screening every other year.

Similarly, Mrs. Baek reported that she is susceptible to breast cancer because she has a family history of cancer. In addition, she has lumpy and dense breasts, and symptoms of

breast cancer. After she recognized her risks for breast cancer, she has had a screening every other year in Korea before she immigrated in the U.S.

> Mrs. Baek: I do not feel that I am safe from breast cancer. I have a family history of cancer. My father died from laryngeal cancer and my grandmother died from stomach cancer. And, I had nipple discharges after breastfeeding. Also, I have high dense breasts and lumps on breasts. But the lumps are not hard. So I had a mammogram every other year in Korea.

In addition, participants' anxiety of their chances of getting breast cancer was reinforced when they knew people, who did not have family history and maintained good health, were diagnosed with breast cancer or other types of cancer. Since their strong belief was broken, having a healthy lifestyle (e.g. healthy diets and no smoking and/or drinking) would not decrease their chances of getting cancer. Interestingly, the participants naturally adopted a fatalistic attitude to health more as they began to lose their confidence. They stated that getting cancer is a possibility due to a "mystery" and "luck" or "random'. Mrs. Lee expressed feeling unsure against what made people have cancer. Her husband passed away from lung cancer and her friend is diagnosed with breast cancer. Both her friend and husband did not have a family history with cancer and maintained their health. Interestingly, her father has been a smoker for a long time and maintained healthy lungs; meanwhile, her friend's father died of lung cancer while he never smoked. Due to these different cancer stories, Mrs. Lee concluded that getting cancer is mysterious and/or based on luck.

Mrs. Lee: As I told you already, my friend had breast cancer even though she had no family history of cancer. Since she was diagnosed with breast cancer, there are possibilities that her daughters will be diagnosed with breast cancer. Right? Why my friend had cancer? She did not drink and smoke and even did not like meat. She is a normal woman like us. It is very strange. I am not sure what causes cancer.
Even when I asked doctors for accuracy, they don't know the answers. I have asked them several times; however, they have only focused on asking me about my family history and if there is a family history with cancer. This happens several times during my medical appointments whenever I questioned about cancer. My husband passed away from lung cancer, but there is no family history with cancer in my family or his family. Why is this? This is weird.

MH: Then, you do not think that family history of cancer is a major risk factor?

Mrs. Lee: No. My father has been smoking over 65 years. He recently had a comprehensive health examination and the result was good. His lung is very clean like a baby's lung. I asked him why your lungs so clean when you smoked for such a long time. (..) My father's friend who never smoked passed away from lung cancer. (..) This is a mystery. I do not understand. It might be related to luck. Good luck or bad luck. I do not understand. The person who had lung cancer was my friend's father and not my father. How are his lungs so clean?

Ms. Jung shared her thoughts that a person getting cancer is random. She was surprised when two of her friends became diagnosed with breast cancer. She never

suspected her friends would have breast cancer since they neither have a family history with cancer nor never had children. In particular, one of her friends maintained a healthy diet. After thinking about her friends' cases, she concluded that cancer is more common these days due to environmental pollution and unhealthy diets (e.g., instant foods), thus people get cancer by chance (random) even though they do not have family history with cancer.

> Ms. Jung: I have two friends who have breast cancer and they are still receiving chemotherapy, which is a painful process you know. They increased my awareness of breast cancer. They did not have cancer history in their family, which made me surprised. One of them is Japanese. She has an irregular lifestyle and maintained an unhealthy diet. She ate a lot of instant foods. So, I thought unhealthy lifestyles cause cancer when she was dignosed with breast cancer. However, I also thought getting breast cancer is random since my Korean friend has it. She managed her health very well and did not have family history with cancer. I don't know how to explain her case in a medical perspective. We cannot exclude family history when we talk about risks for cancer. However, we should consider the effects of environmental pollution. What I am concerned is the environmental factor. I do not feel safe from breast cancer or other types of cancer even though I do not have cancer history in my family. Who knows?

On the other hand, participants from Group 3 were likely to feel safe from breast cancer. Basically, they believed that breast cancer is not common in the Korean community, which explains for their lack of awareness of breast cancer and breast cancer screening. Although they knew Korean immigrant women with breast cancer, they

weren't concerned since these women had early stages of cancer and had been successfully treated. For example, Mrs. Im reported not being concerned with breast cancer because it is a rare disease found in Asian women.

> Mrs. Im: I don't deeply think about breast cancer because I do not have friends or neighbors who have breast cancer. If there were women with breast cancer around me, I would think about it. If I knew various cases (e.g., having breast cancer with and without family history), I might take it seriously. In my thinking, breast cancer is more common in White women rather than Korean women. Oh, I heard that.. breast cancer incidence rates are increasing in Asian women because they adopt American life style such as getting married late and no breastfeeding. However, I still think that the chance of having breast cancer is very low in my generation. Not sure for the younger generation, though.

In addition, the participants reported that they are not concerned about breast cancer because they have a lower risk of having breast cancer. For example, Mrs. Kim felt relieved about getting breast cancer because she did not have a family history with cancer and she breastfed her child after birth. Furthermore, Mrs. Dong said that she was more concerned about cardiovascular diseases instead of breast cancer since she has a family history with cardiovascular diseases.

> Mrs. Dong: I did not deeply think about breast cancer because I did not want to think about it. I do think that I am safe from it and just do not want to think about it… My mom died because of a stroke…so I am afraid of cardiovascular diseases instead of breast cancer. It could be genetically inherited. If my mom died of breast cancer, I should have had screening every year. But this is not the case.

Only one participant, Mrs. Jeon, from Group 3 believed that breast cancer is a common disease. In the past, she thought it was unusual to be diagnosed with breast cancer in Korean women; however, her thoughts have since changed after two of her friends had breast cancer. Furthermore, she started thinking that getting cancer is "ironic" and everyone gets cancer after one of her friends passed away from breast cancer. Her friend maintained good health by eating healthy foods and focused on regular exercises.

Fear of losing femininity. Some participants (n= 7) reported to have a mastectomy in their mind when they think about breast cancer, which naturally linked to fear of losing femininity. They viewed breasts as a symbol of womanhood, nurturing, and sexuality. Three participants expected not to be in public such as sauna and rejection from their husband if breasts are removed. They also reported that no breasts will make them feel depressed.

> Mrs. Cho: Breasts are symbolic for women. I cannot imagine even living without breasts. How can I go to the sauna after my breasts are removed? As you know... Korean people love to go to the sauna. It is going to be very tough. Life will be limited in various ways. Plus, I will be depressed.

> Mrs. Oh: I heard that women who had breast surgery due to cancer could not go to a public sauna. Also, they will not be sexually attractive and it will cause troubles with husbands. I heard about all the negative things. Breast removal comes to my mind very first when I think about breast cancer.

Three participants mentioned breast reconstruction after a mastectomy. They knew women with breast implants after surgery. Mrs. Jung said that her two friends with breast cancer had breast reconstructive surgery. She was very supportive for her friend's

decisions to have the surgery. She believed that breasts are symbolic for women and their friends.

Overall, participants believed that breasts will not be removed if breast cancer is detected at an early stage, which led them to feel relieved from the fear of losing femininity. For instance, Mrs. Oh talked about "a lucky case". Her friend with breast cancer did not undergo surgery because the cancer was detected at a very early stage. In addition, Mrs. Dong said that women with breast cancer were less likely to have their breast removed these days than in the past due to early detection.

Fear of treatment procedure. Some participants (n=5) reported fears of chemotherapy for breast cancer, in particular those who closely observed or heard about chemotherapy experience for cancer. They reported it was tough to observe the treatment process as a family member or friend. Since they believed chemotherapy is painful, they assumed it is best to prevent cancer as quickly as possible by detecting cancer at an early stage. Mrs. Hwang knew several cancer patients that suffered from chemotherapy and are diagnosed with different types of cancer including breast cancer. She was aware of the painful chemotherapy procedures, which increased her awareness of the importance of early detection of cancer. The indirect chemotherapy experiences became one of the reasons why she initiated a regular check-up such as a breast cancer screening.

> Mrs. Hwang: I know that chemotherapy is a painful procedure.. I have friends and family members who had chemo. My two brothers were diagnosed with colorectal cancer. After they had surgery, they had chemo for two years. Oh my god! You cannot imagine the hardships of caring for them as a family member…. Some people who experienced chemo stated they refused to continue chemo if their cancer returns.. You know.. that means it is too painful. Even

though I have no experience, I understand what they meant.. I can feel their pain.. After I saw my brothers and friends suffer from cancer, I realized that prevention is the best thing while we still can. I did not get a regular check-up for over 10 years, but I had one this year. This should be a priority. I learned from people around me.

Similarly, Mrs. Yun was aware of the importance of regular breast cancer screening after she heard about chemo experiences from women around her. Her friend finally gave up chemo because she could not endure the pain. After hearing her friend's story, she thought it is better to get a mammogram once every other year for the purpose of early detection of cancer and to avoid being diagnosed with advanced stages of cancer.

Mrs. Yun: Women who had breast cancer frequently said that it is better to die rather than to have chemo. They said that surgery is easy and simple compared to chemo. They lose their hair because of chemo. You know.. it is painful. It is not easy to accept that kind of apperance changes. My friend shaved her head after losing her hairs. She cried while shaving. After she had the second chemo, she decided to give up the treatment. Her doctor encouraged her to continue with chemo, but she did not want it anymore. Then, she started managing her health. She does not have even medicine. She exercises every day and kept a healthy diet. After 5 years since she refused chemo, she is still alive. You know…when I heard about stories from women with breast cancer, I think that it is better to get screened. It is more pleasant hearing that the X result is normal. If anything happens…If I am diagnosed with breast cancer stage 3…oh my god…it would have been better to prevent this in advance. It is okay to get a mammogram every other year, and not every year. Just once every two years…

Other participants shared similar stories about appearance changes caused by chemo. Mrs. Oh reported there was a single woman who refused chemo for breast cancer to avoid losing her hair, and then her cancer cells spread through to her bones. Mrs. Kim reported to feel terrible after meeting two women who lost their hair because of chemotherapy.

> Mrs. Kim: I met with my cousin a few times after she was diagnosed with breast cancer and after receiving treatment. She suffered from chemo. She lost her hair and became bald. Afterward, she quit her job. It was terrible. Oh my.... I knew another woman who had breast cancer. She is a White woman. She was very healthy and much younger than me. One day, she was wearing a headscarf. Oh my god. She had breast cancer and was receving chemo. She lost her hair. That is why she was wearing the headscarf. I was shocked.

Fear of breast cancer recurrence and death. A few participants (n=5) reported fear of a possible recurrence and death from breast cancer. Among them, three participants were worried about uncertainty that cancer could return in the future after surgery and/or treatment. Their friends experienced cancer returning at its original site or in other parts of the body. For example, Mrs. Lee stated there is no guarantee that cancer will not return. A friend of Mrs. Lee had one of her breasts removed; however, after 7 years of finishing her cancer treatments, cancer was found in her other breast.

> Mrs. Lee: I am so afraid of cancer. Because there is no guarantee that cancer will not return. I fear the risks of cancer relapses. It returned 7 years or 10 years later after surgery is done. This is my friend case. I am scary. You know.. Doctor said to my friend that she was survived from cancer. However, it turned to her other breast,

> so it was removed again. So scary. Cancer is just scary. Any type of cancer is scary.

In the same way, Mrs. Jeon reported her fear of breast cancer recurrence and death. In particular, her fear increased when her friend died from cancer. Her friend was diagnosed with breast cancer but the cancer came back to her pancreas and she suffered from pancreas cancer.

> Mrs. Jeon: You know.. women lived well after they had surgery and treatments for breast cancer these days. They engaged in social activities. So..I thought it is not tough to survive. However.. my thought changed after my friend died from cancer. She was okay for a while after she had surgery for breast cancer. One day, the cancer returned and spread to other parts of her body. There are several factors that may have caused it. I am nor sure, though. Anyway, she was diagnosed with pancreas cancer later and suffered from it. After 2 years, she died. She was my bestie. So sad.

Another participant, Mrs. Cho, reported her fear of death from cancer. After she observed multiple cases of breast cancer at various cancer stages, she reached a conclusion. She believed women eventually died from breast cancer when diagnosed at more advanced stages. On the other hand, prevention is easier when cancer is detected at an early stage. This motivated her to get breast cancer screening regularly as a way to prevent death and reduce her fear.

Breast cancer prevention. More than half of participants (n=12) believed that breast cancer is preventable, while three participants were skeptical about cancer prevention. Two were unsure that cancer could be prevented.

The particpants shared several ways to prevent breast cancer. Nine participants from group 1 and 2 reported they are maintaining healthy lifestyles along with regular mammograms. Three participants from group 3 emphasized they kept healthy lifestyles. They commonly stated to have done things to keep their breast cancer risks as low as possible. These things include managing their stress, having healthy diets with exercises, and not using of HRT (Hormone Replacement Therapy). For example, all the participants (n=12) indicated that stress is a major risk factor for breast cancer. They agreed that stress could develop all types of diseases, and cancer is not an exception. Among these participants, six people explained how stress causes cancer. They believed everyone has cancer cells in their body and stressful events prevent our immune system from working well, thus cancer develops in the weakest part of the body. If a person's weakest part of her body is her breasts, then cancer cells will developin her breasts.

> Mrs. Park: I think that everyone has cancer cell but people who are under huge stresses ususally have cancer. Stress is one of major risk factor for cancer. Stress causes cancer.
>
> MH: Ah.. we all have cancer cell and stress…
>
> Mrs. Park: Yes. A cancer cell is dormant in our body and…when we are under stress.. cancer could develop.

Other participants (n=7) commonly said that women with breast cancer tend to have tough and stressful lives. Divorce was reported as one of the stressful events for women, which causes breast cancer. They also stated that women are likely to be diagnosed with cancer especially breast cancer. In particular those who suppressed their angers and have negative thinking have higher levels of stress.

> Mrs. Oh: I knew two women who had breast cancer. Both were divorced. One person did not have a good relationship with her

> husband and decided to get a divorce. She was not satisfied with her marriage life. Stressful life…Anyway..after she got divorce, she raised her children alone. You know.. it is tough and stressful.. Another person died from breast cancer. She was diagnosed with lung cancer but the cancer spread to her breasts so she passed away.. Anyway.. I realized that stress affects our health. Too much stress could cause cancer. Unhealthy family relationships cause stress for women. Stresses from husbands, mother-in-laws, and children are too huge.
>
> Mrs. Sung: Stress definitely causes cancer. Many people said that around 40 – 50% of cancer is developed due to stress. That totally makes sense for me when I think about people who had cancer around me. My best friend, my friend's husband, and others.. they all had cancer. You know what they have in common? They are under more stress than others. They tend to feel depressed, suppressed their emotions, or not explained what they want. I have a big temper and express my emotions a lot. So.. If I die of a diease, the diease would be a heart attack not cancer. You know what I mean?

Interestingly, Mrs. Dong said it takes 7 years to develop cancer in the body after experiencing the most stressful events in life.

> Mrs. Dong: When I worked at nuring home, there was a person who was dying of cancer. Before she was diagnosed with cancer, she got divorced 7 years ago. I heard that women could have cancer after 6 years from the stressful events.

All participants agreed that no one is completely free from stress, and their stress level as immigrants is high because of language issues, cultural differences, and being

homesick. For example, Mrs. Boo felt that she is “the disabled” because of language barrier. Particularly, she felt miserable, when she could not provide enough support for her children. She could not communicate with her children’s teachers at school nor provide guidance for them in helping them prepare to go off to college. She used her children as translators when she needs to communicate in English. That was the toughest thing for her. She suffered from depression because of this. Mrs. Boo and several study participants reported that having positive thinking and an appreciative mindset relieves their stresses. They mentioned prayer, meditation, crying, and connecting/talking to friends as strategies in eliminating stress.

Some participants mentioned there are other ways to prevent cancer such as maintaining a healthy diet and participating in regular exercises. Several participants (n=10) believed unhealthy diets cause all types of cancer: instant foods, fattening or sweeten foods, genetically modified foods, and chemicals/preservatives found in food. Several participants (n=5) reported their friends who had cancer commonly have irregular meals and unhealthy foods. For example, Mrs. Cho thought foods we eat mostly affect cancer development. She said that people with cancer mostly have fried foods. Her friend with stomach cancer loved fried foods. She also thought more people practicing unhealthy diets by eating instant foods and eating out these days resulting in higher chances of developing cancer.

> Mrs. Cho: I think that foods are the major factors in cancer. People eat fried foods a lot these days..that is not healthy. My friend with stomach cancer had surgery. Then, she was diagnosed with a lymphatic gland cancer again.. she loves fried foods. When we go to buffet, she eat fried chicken.. So..definitely foods link to cancer. Thinking about people with cancer around me.. they tend to like

> fried foods and eat a lot. So..people who enjoy fried foods have higher chances of getting cancer. Furthermore… think about instant foods…these days, people likes to have instant foods and/or eat out... All these kinds of behaviors could contribute to develop cancer.

Similary, Mrs. Dong also commented on unhelahty diets causing cancer.

> Mrs. Dong: I watched YouTube videos about cancer. One thing that is still in my memory is.. that fat and sugar cause cancer. So, if we intake too much fats or sugar, our chances of getting cancer will increase. Though I am not sure about breast cancer. Anyway.. you know that cancer cell is abnormal cell, which is unhealthy cell. So, I think that having healthy diets are important because they directly affect our health. Healthy cell became unhealthy cell like a cancer cell. We usually talk about family history with cancer when talking about risk factors for cancer. Family history with cancer absolutely links to genetic. But we also need to consider diets because family members tend to share similar food preferences.

The participants believed that eating healthy foods (e.g., vegetables, fruits, and fish) could reduce cancer risks, thus they tried to have them regularly even though they did not want stop eating them. For example, Mrs. Lee said that she has managed to have salad almost every day for her health even though she does not like it.

In addition, they tried to reduce the amount of meat they usually have and chances of eating out. Furthermore, a few participants tried to purchase organic products as much as possible. For instance, Mrs. Min trusted organic ingredients after taking a free health lecture at a community center. She reported feeling burdened at times to purchase organic ingredients, but continued for her and her family's health.

.

> Mrs. Min: I had a chance to attend free health lecture. A famous doctor talked about the importance of having healthy diets. He published a book and appears on a Radio talk show. Anyway.. the main point of his lecture was that we won't need to be seen by a doctor if we manage our health by eating healthy foods.. It is useless to get a health examination and see a doctor if we continued to eat unhealthy foods. He said that many people spend too much money on purchasing big house and a fancy car…but eat junk foods… You know... that is true. Having good and healthy diet is the first step to managing our health well. So..I thought foods are important...To have healthy foods, we need healthy ingredients. So.. I tried to get organic stuffs. I paid $10 for a dozen organic eggs. Eggs are really good for our health. Our family has two eggs every morning. We tried to eat meat less.. If we really want to eat meat, then we purchased good meat. To be honest, we are not that wealthy. We are normal family. We sometimes felt burden to purchase the organic stuffs. However, I think that it is really important to have healthy diets for our health.

On the other hand, Mrs. Jung does not fully trust organic foods and products even though she purchases them. She was not sure if what she bought were "real" organics. She wondered if organic agriculture is real since there are many genetically modified crops and environmental pollutants. Despite having doubts, she purchased organic products because she feels they are better than commercial products. She also tried to minimize her food consumption.

Lastly, some participants (n=6) said that the use of HRT causes breast cancer, thus it is better not to use HRT. They reported that HRT is commonly prescribed to

women with menopause to relief their symptoms: hot flashes, night sweats, sleep disturbance, and increased anxiety or irritability. Mrs. Min shared that her doctor recommended using HRT after menopause, but she did not follow through with the recommendation because she believes HRT increased her chances of developing breast cancer. Two participants reported that they used HRT in the past because their doctors recommended it, and then suddenly stopped when their doctors suggested to discontinue HRT. After they stopped using HRT, they continued to manage their menopausal symptoms without it. For example, Mrs. Sung was aware of the potential risk of HRT in causing breast cancer because she knew two women with breast cancer who used HRT. She, therefore, was concerned about whether she should use HRT or not after reaching menopause. She finally decided to use HRT because her male doctor recommended it; however, she stopped six months later after meeting a new female doctor.

> Mrs. Sung: I observed several women who used HRT and then they have breast cancer. My cousin had breast cancer. She used HRT after she had an operation to remove her uterus. She was diagnosed with breast cancer after she used HRT for maybe 10 years. Another young woman…she used HRT to undergo test-tube baby. She finally has breast cancer and removed one of her breasts. So, I thought a lot whether I need to use HRT or not when I am faced with menopause because I am aware of the side effects of HRT. I had symptoms like hot flushes, increased anxiety, or irritability but they were manageable. People said that there are several benefits from using HRT such as getting smooth skin. One day, I saw a doctor at women's clinc…even doctors had different ideas... you know. I finally decided to use HRT because my doctor recommended it. He was a male doctor. After six months, I saw a new female doctor. She did not recommend using it because of its

> high risk for breast cancer. So I stopped using it after I saw the female doctor. You know…I am fine without HRT. I still have symptoms but I can handle them.

Interestingly, five participants who were skeptical or not sure about breast cancer prevention still highlighted the importance of maintaining healthy lifestyles and regular mammography uptake. Among them, four participants were open to the possibilities of getting breast cancer and they believed that it would be better to detect cancer at an early stage if they had one. All the four participants completed mammograms in the past two years. On the other hand, one participant with uncertainty of having breast cancer had a mammogram more than 10 years ago in Korea before she immigrated to the U.S. Participants had various reasons for why they are unsure or believe breast cancer is not preventable. For example, Mrs. Baek said that it is impossible to grow cancer cells in our body. She also mentioned that there is no vaccination like flu shot to prevent cancer, thus the only best way is to detect cancer at an early stage as quickly as possible. Another participant, Mrs. Lee believes life and death is out of human's control. She mentioned doing her best to reduce her risks for breast cancer, and will accept it if she has breast cancer.

> Mrs. Lee: I feel resilient to diseases because I am old. I fear having cancer. If someone is meant to get cancer, they will get it…me too…but... you know… I do not drink and I do not smoke. I am doing my best to maintain my health. I eat healthy foods and I do exercise. Plus, I also get a health check-up. Then what? I should accept it if I have breast cancer. It's out of my control if I should leave or die. You know I saw many people who died from various

reasons. Life and death is beyond human's control. This is what I have learned from the deaths I observed.

Two participants also thought it would be hard to prevent cancer even if they try their best to prevent it. They reached their conclusions based on the cancer patients they observed.

> Mrs. Bo: I know a woman who really cares about her health. She was very healthy. She does exercises every day and has a regular check-up on a regular basis. I was surprised when I heard that she was diagnosed with breast cancer. She completed a mammogram. I am not sure that if the mammogram failed to find the cancer, or something happened after she had a mammogram…She felt something strange on her breasts, went to hospital, and had a mammogram again. Fortunately, it was at an early stage. Not really serious. But…you know she must complete surgery and go through chemotherapy. Everything is completed and now she is recovering well. After I heard about her story, I do not think that cancer could be prevented. You know… even she tried her best to be healthy to prevent cancer, but she has breast cancer.

> Mrs. Yun: A person that I knew died of liver cancer maybe 2 years ago. He has a family history with liver cancer. His brother and father passed away from liver cancer. He had known about his family history, he is concern and cares about his health. He has annual check-ups.. But... you know what… his doctor made a mistake... I think he was misdiagnosed...I do not know the whole detail story... but the sense there was something going on. His doctor did not recognize it. So, he decided to get a second opinion from a different doctor. The second doctor asked him…why you only come to see me now? The doctor asked him to bring his medical records.

> Anyway, he did what he could do. What else could he do at that time? He tried his best but he was diagnosed with cancer andpassed away. So...it cannot be prevented.

Views on Breast Cancer Screening

Two themes were identified based on particpants' views on breast cancer screening: efficacy of mammography screening and breast cancer screening regularity. In general, participants believed that breast cancer screening is an effective tool to detect breast cancer. Interestingly, participants had different ideas on how often they need to be screened.

Efficacy of mammography screening. Overall, almost all participants understand that early detection of cancer increases the chances for successful treatment, and treatment can be difficult when a person's cancer is at later stages such as low survival rates and cancer spreading to other body parts. Likewise, participants believed that women would have a higher chance of survival and no breast removal when breast cancer is detected at an early stage. Most participants agreed that mammography screening is an effective method to determine if a person has breast cancer. Only few participants (n=3) were unsure the efficacy of mammography screening. Nevertheless, they thought mammogram is a useful method. Two participants named, Mrs. Jeon and Mrs. Cho, did not believe that mammogram is 100% accurate because they knew women who got screened several times and their mammograms failed to find cancer.

> Mrs. Cho: I am not confident that mammogram detects all breast cancer. Sometimes it fails. However, there are chances it will detect breast cancer. I know some cases where women found breast cancer because of a mammogram.

Another participant, Mrs. Im, questioned the reliability of a mammogram machine.

> Mrs. Im: It is not reasonable to use one size of mammogram machine for all women to find breast cancer. Each woman has different sizes of breasts. How will the machine examine those with very small breasts?

Along with mammography screening, most particpants (n=9) from group 1 and 2 reported to practice breast self-exams sometimes when taking a shower or lying down; meanwhile, the rest of the particpants (n=3) in those groups did not practice it. These three participants had different reasons for not perfoming breast self-exams. For example, Mrs. Lee reported that she used to pratice breast self-exams but stopped it two years ago. She received information via mail on how to perform breast self-exams but two years ago she stopped receiving information, thus she thought this is no longer a requirement. Two other particpants, Mrs. Jung and Mrs. Sung, reported that they were not sensitive to examining for lumps on their breasts.

Interestingly, participants in group 3 were more likely to practice breast self-exams than those who are in group 1 and 2. They agreed that a mammogram is an effective way to finding breast cancer, and they rely on breast self-exams to check for lumps or other breast changes that may be signs of breast cancer. They believed that it is time to get a mammogram when they noticed abnormal changes on their breasts. They reported not worrying about their breasts because they felt no changes on their breasts. For instance, Mrs. Bo has performed breast self-exams for a long time. She reported that she would have had a mammogram if she found something abnormal on her breasts through breast self-exams.

> Mrs. Bo: I have learned about how to conduct breast-self exam through newspapers and women's magazines. They put some images on the newspaper or the magazine, so it is easy to follow. I knew this information from Korea before I immigrated into the U.S. I do self-exams sometimes and they felt normal. If I felt something wrong, I would see a doctor and get a mammogram despite being busy with my business.

Due to misinformation about mammography, Mrs. Dong thinks breast self-exams are the best and safest ways to finding breast cancer.

> Mrs. Dong: I heard a weird story about mammography. If we have cancer cells in our breasts, there is a possibility that the cancer cells will spread out to other parts of body while our breasts are being squeezed. I do not truly believe it, but it makes me not want to get a mammogram. I don't have time and knowledge for exploring this. Anyway.. After hearing about the story, I feel more reluctant to get a mammogram. So... the best way to find cancer is to perform breast self-exams. If we feel something strange while performing breast self-exams, then we try to get a mammogram done. You know... this limits the number of screening experiences unless I feel something is wrong.

Breast cancer screening regularity. Overall, particpants' preventive health pratices along with their health care resources influenced their screening regularity. Interestingly, no participants were aware of guidelines for breast cancer screening published by the American Cancer Society or the U.S. Preventive Services Task Force. Participants had different thoughts on how often they need to get screened. First of all, participants from group 1 have had a mammogram every year for quite a long time. They

reported that getting a mammogram becomes a habit for them and felt like they are completing an annual homework assignment. Among four participants in group 1, three had high level of preventive health orientation. They understand it is important to have a regular check-up to prevent cancer by detecting it at an earlier stage before it advances. They have long-term health insurance which enabled them to get a regular check-up. Their primary health care providers recommended them to have different types of medical examinations (e.g., screening) when they reached a certain age. They followed the recommendations, thus they initiated their first mammogram and have maintained their screening.

> Mrs. Park: I have health insurance and primary care doctor. So I have a great access to health services. When I see my doctor, he reviewed my chart and mentioned several health exams that I need to have. I just followed his directions. I completed my first mammogram because he recommended it… It is important to get a regular check-up and treat diseases before they become worse. We do not need to wait until we are sick. If I have a health problem or get sick, then it is my loss. You know that.

Along with the doctor's recommendation, Mrs. Cho reported she receives a mail from her health insurance company that encourages the uptake of mammography if she misses one.

Interestingly, Mrs. Min who had a lack of preventive health orientation has cared about her breasts' by completing free mammogram service for over 10 years. She had health insurance when her husband worked, but did not get a regular check-up at that time because she did not have any health issues. Her family has no health insurance when her husband started working in a different company. One day, she was contacted by

YWCA's free mammogram service and was enabled to begin her mammogram. She has had one every year for 15 years.

> Mrs. Min: I was not interested in preventive care for a long time becauase I have been healthy. I still do, though. I had health insurance when my husband worked at the company, but did not have a check-up. I did not want to have a Pap test or mammogram.
>
> MH: Oh, really? That's interesting. But, you have had mammograms for a long time. How does that happen, then?
>
> Mrs. Min: Hum. One day I had a phone call from YMCA. They are really ardent to breast cancer screening. They said that my friend provided my contact information to them. I have a friend who has used that free program. Simply say, my friend recruited me to their program. Anyway… at that time, I did not have any experience with mammogram and did not have health insurance. So, I decided to get it. Why not? It is free. I knew that women need to get a mammogram when they are getting old. You know, it was not easy to have one every year because I sometimes needed to drive to get one. But, the YMCA people were very nice. They found the closest location that I can get a mammogram and helped me to reschedule it. I sometimes went to church and non-profit organization to get a mammogram. Oh, one time I had one on the bus. It was a big bus that had the machine. The YMCA people really cared about me and other women. Maybe it is because of their jobs.

Second, most particpants from group 2 tend to have a mammgoram every other year, or once every three or four years on average. Overall, they had lower levels of preventive health orientation. Most particpants (n=6) reported that they did not see a doctor or get a regular check-up even though they have health insurance, unless they have

a health problem. More than half of the participants (n=5) have had health insurance for quite a long time, while a few participants (n=3) recently enrolled in health insurance by Obamacare, MediCal, or Medicare. The particpants reported that their first mammogram was initiated by the circumstances that surrounded them (e.g., knowing quite a number of cancer patients and family support) and the circumstances kept them screening on a regular basis. For instance, four participants stated that they initiated their mammogram because they had family members, friends, and neighbors who were diagnosed with cancer, which increased their awareness of early detection of cancer. They showed an active attitude to getting a mammogram in times of crisis such as using a free mammogram service. For example, Mrs. Hwang did not get a health check-up for 10 years after she quit her job since she felt it was unnecessary to get a check-up and did not have a health insurance. During this time, her two brothers were diagnosed with colorectal cancer at an advanced stage. She was shocked and was scared because there were many cancer patients around her, which led her to realize the importance of preventive health practice. She decided to get a screening and had her first mammogram through a free mammogram event. Recently, she has been insured by Obamacare and got her second mammogram after 10 years. She thought that it would be helpful to get a mammogram every three or five years to detect breast cancer, which made her get another mammgoram three years later after she initiated the first one.

On the other hand, Mrs. Hyun began her regular check-up when she was 60 years old because her adult children helped her schedule a medical appointment. Her primary care physian recommended her to get a mammogram while getting a regular check-up, and she followed through with his recommendations.

Mrs. Hyun: Who wants to go to the hospital? Everyone does not want to visit one. I really hate seeing a dentist and doctor. Who likes to see a doctor? The best way is to not get sick. However, it is impossible as you get old. I see a doctor when I feel really sick.

MH: Oh, I see. Many people said that they do not want to see a doctor. Then, how do you mange your health?

Mrs. Hyun: I just have a regular check-up once a year. My daughter makes a schedule for me and brings me to the hospital. My children paid for my health insurance for a few years until I have MediCal and Medicare. You know, it is really expensive. Over a thousand dollars! I thought it was not worth it to pay that amount of money to get health insurance. So, I said to my children. They do not need to pay for it. I do not need it. But they said… no mom…it is very expensive to go to hospital without health insurance, so you should have one. Don't worry! We are going to pay for it. So…I said…okay... Anyway… when I see a doctor to get a check-up, he recommends me to get a mammogram. So, I had a mammogram a couple of times.

Participants in group 3 tended to have a mammogram by chance such as opportunitites to use free mammogram services, visiting hospitials for health issues, and chances to get a mammogram in Korea. Overall, they had very low preventive health orientation and recently had health insurance except three particpants. One participant still does not have health insurance and two other had health insurance quite a long time ago. One of them had very limited coverage that could only be used for emergency (e.g., being hospitalized for a chronic illiness) and another had health insurance through MediCal and Medicaid. In terms of their chances to have mammograms in the past, Mrs.

Dong reported that she had chances to get a mammogram by using free services. She had a friend who worked at Korean community health clinic which provided a free mammogram and pap-test to the public.

> Mrs. Dong: I had a friend who worked at a Korean health clinic which provides free breast cancer screening and Pap-test. One time I had chance to visit the place in order to meet my friend. They talked to me their about free programs, so I had the mammogram and pap-test. I did not have any thoughts that I should have the screenings. It was just by chance. You know… life is busy and crazy here in LA. I do not have time to think about cancer or cancer prevention. If I have some chances to get a mammogram, I would get it. But..I personally do not prefer to get one.

Another two paticipants reported that they visited hospital due to health issues in their cervix and then had mammogram because the doctors recommended it. For example, Mrs. Im had health check-up two times in the past because of excessive menstrual bleeding. At that time, the doctor recommended her to get a mammogram thus she had one. After that, she did not get screened because she had menopause (no more health issues in her cervix) and felt it unnecessary to get a health check-up.

> Mrs. Im: When I was in my early 40s, I had health issues in my cervix, so I had health examinations two times. At that time, I had mammograms. It was a part of the examinations because the doctors recommended it. After that I have not had a screening because there was no reason for me to get a regular check-up. I had menopause. I have Obamacare but I have to pay to have a regular check-up. It costs money. I mean… you know why I need to get a health check-up even though I do not have any health issues. It costs money.

Similarly, one participant said that she had a mammogram when she went to a women's clinic to get a pap-test. Other participants said they had a chance to get mammograms in Korea because one of her relatives has an obstetrics and gynecology clinic.

> Mrs. Kim: Even though I have health insurance, I do not see a doctor. We pay a lot to keep the health insurance. It is very inconvenient to see a doctor. The process is complicated, in particular to get a mammogram…One time I had a chance to visit Korea, and had a Pap test and mammogram. One of my relatives runs women's clinic in Korea and she asked me to stop by her clinic. So, I visited and had screenings. That was my first and last mammogram until now.

Motivations and Challenges to Breast Cancer Screening

Overall, participants across groups had similar motivations and challenges to breast cancer screening. Participants in group 1 and 2, however, were more motivated to get a mammogram compared to participants in group 3. The participants reported various challenges to breast cancer screening but had different strategies to deal with them.

Motivations to breast cancer screening. As briefly noted earlier, participants reported several reasons to get a mammogram on a regular basis or initiate their first mammogram. Overall, participants from group 1 and 2 exceedingly understood the importance of early dection of cancer, which is rooted in their fear of breast cancer. They knew that breast cancer is a common cancer found in Korean immigrant women. In addition, they have observed their family member, friends, and neighbors who suffered

from breast cancer, which increased their awarenesss of and fear of breast cancer (e.g., gettingbreast cancer, losing feminity, treatment procedure, and death). For them, the best scenario is not to get breast cancer. However, they strongly believed that it would be better to find breast cancer at an early stage if they had it. In addition, particpants in group 1 tended to have a higher level of preventive health orientation along with health insurance. They had access to health services. Their physicans reminded them it is time to complete a breast cancer screening whenever they had a regular check-up, and they followed. Unlike group 1, participants in group 2 tended to have limited health insurance coverage or were insured recently via Obamacare, MediCal, or Medicaid. Interestingly, they actively searched for free mammogram services and had mammograms as needed when they were concerned about the health of their breasts.

On the other hand, participants from group 3 had very limited motivations to breast cancer. They knew women who had breast cancer but did not take it seriously. They had beliefs that they had lower chances of getting breast cancer because they had no family history with cancer and managed their health well. In spite of lack of fear, they were aware of the importance of early detection of cancer. They felt the need to get a breast cancer screening when they felt something strange in their breasts, which led them to get a mammogram at random.

Challenges to breast cancer screening. Study participants reported various challenges to getting a mammogram. The most common challenges included physical pain, feeling uncomfortable, feeling embarrassed, having a lack or limited health insurance, and complicated and timing consuming procedures. Other challenges mentioned were language barriers, radiation exposure, age, and transportation. Some

participants developed their own strategies to deal with the above challenges to get a mammogram, while some participants chose not to get a mammogram.

Endurable pain vs. unbearable pain. Most participants (n=14) reported that it was painful due to the pressure that was put on the breast as the plates of the mammograph reader pressed against the breast but this was not unbearable. Some participants said that they could accept the pain because it was a part of procedure and the pain went away when the pressure was relieved. Interestingly, one participant said that the pressure made her want to get a more accurate mammogram.

> Mrs. Lee: I feel relieved for a year after I had a mammogram. I trust the screening. Some people complain about the pain. But.. for me, the pain makes me to feel that the exam is more accurate. It sounds weird but it is better to have the pain.

Another participant said that older generation tends to bear pain well because they had tough life experience (e.g., Korean War). Given their harsh life, the pain was nothing.

> Mrs. Hyun: We are good at tolerating pain. We experienced the Korean War and had tough lives. It is not really painful. The pain disappears right away after mammogram is done. Our generation is not used to expressing our emotions. Pain is just pain. The pain does not kill us. It is not extremely painful. We can bear it.

On the other hand, three participants reported they did experience unbearable pain. Two of them skipped screening because they did not want to experience the pain again but they knew that they were supposed to get it. They said that it would be better to have other ways to check breasts and not through a getting a mammogram. For example, Mrs. Yun shared with her friends her painful experience with a mammogram. She soon

realized she was not the only one who experienced pain. She scheduled a mammogram last year, but cancelled due to her vivid memory of the pain.

> Mrs. Yun: Oh my god. Have you ever had a mammogram? I had very negative experiences with it. It is really painful. It is terrible. I really hate it. I do not really want to get it again, but I know I have to have one at least every other year. Some of my friends had similar experiences. They experienced the similar level of pain that I had. One of my friends said that she will not get it again. I totally understand her. It is such a painful process. It would be great if we have other ways to exam our breasts. I strongly believe that women with small breasts definitely agree with me. The pain makes me hesitate to get it again. I work and I am busy, but I can make find time to get it done…but...the thing is painful. I was scheduled to get the third mammogram last year but I cancelled it because I did not want to experience the pain again. When I think about a mammogram, only pain comes to my mind. You know, I felt uncomfortable after I cancelled it. But at the same time, I thought that it would be okay to skip it one time since I don't have a family history of having cancer, I already breastfed my children, and I had good results from my first and second mammograms.

Comfortable vs. uncomfortable and embrrassing but invincible. Around two thirds of participants reported that they did not feel uncomfortable exposing their breasts and having their breasts touched by technicians during a mammogram screening. They reported that having female techinicans made them feel less uncomfortable. Interestingly, Mrs. Oh said that she is fine with exposing her breasts for examination because she is a married woman. She explained that married women are less likely to feel modesty because there is nothing to feel shy or embarrassed about. For married women, breasts

have no meaning beyond “milk box”. She also said that one of her friends, who is not married, was never screened because her friend does not want to expose her breasts to strangers even when they are health providers.

On the other hand, a few participants reported feeling uncomfortable and felt embarrassed in getting breast cancer screening. Interestingly, two participants commented on their body shapes. They felt more confident or comfortable to get a mammogram if they had “nice” body shapes such as slim figures or no pot bellies. In addition, one participant said that she personally does not like to visit hospital for obstetrics and gynecology.

> Mrs. Sung: During my first time, I was a little bit uncomfortable but I am now getting used to it. We (technicians and she) are all women and it is conducted in exam room. One thing that I am still uncomfortable is my body. If I have a slim and nice body shape, I may feel more confident in getting a mammogram...but....I am a little bit overweight.
>
> MH: You just mentioned that you are uncomfortable having a mammogram. Would you please talk a little bit more about it? What made you feel uncomfortable?
> Mrs. Jueon: In general, Korean women hate to visit women’s clinic. No one likes it. Who likes to be undressed even though it is examination? That made feel really uncomfortable. I hope that there is an easy way to check our breasts.
> MH: Oh I see. You have two reasons for not getting screened. You do not want to be in women’s clinic and expose your breasts.
> Mrs. Jueon: Yes, I am ashamed of my pot belly. I feel ashamed of myself….

Lack of or limited health insurance. Health insurance was reported as one of major barriers to getting a mammogram. As noted earlier, participants in group 1 tended have health insurances for a long time, which allowed them to access health services including breast cancer screenings. Mrs. Lee shared her story of having health insurance for over 30 years.

> Mrs. Lee: One of my close friends told me to get health insurance when I moved to the U.S. Two or three years later I immigrated here, my husband and I bought health insurance. We have been insured for 36 years. You know what? It takes a lot of money to pay for it. We paid more than a thousand dollars every month. Oh my god. Health insurance is really expensive in this country. I sometimes thought that a waste of money when I was younger. However… we had lots of benefits from it. I had surgery and my husband's treatment for lung cancer. He finally passed away from cancer. If you are sick without health insurance, you may need to sell your house to get treatment. We need to have a regular check-up before we get really sick. All the basic examinations are covered by my insurance. I am eligible for blood tests, eye exams, cholesterol checks, and various cancer screenings including mammogram.

On the other hand, participants in group 2 and 3 were more likely to be insured recently through Obamacare or MediCal or Medicaid. They had limited access to health services until they were insured. They did not see a doctor when they did not have health insurance because of the financial burden of medical expenses as well as lack of preventive health orientation. However, some of the particpants started to get a regular check-up since they have been insured. For example, Mrs. Hong said, "I am senior. I have Medicare and Medicaid that allow me to get a regular check-up. I had all types of

preventive services such as blood test, cholesterol test, a mammogram, a Pap-test, a colonoscopy, and even gastrofiberscope. Whenever I saw a doctor, he recommends me to get exams that I need to have. There was no reason to get a health check-up since everything was covered by insurance."

Some participants in group 2 and 3 had limited insurance coverage that excludes a regular check-up. The participants, therefore, used free mammogram services as needed or visited Korea to get health examinations. For example, Mrs. Oh and her family have been insured since they immigrated in the U.S. However, the insurance is for only emergency which is cheap. Her family did not want to spend too much money to buy health insurance. Instead, she visited Korea to get comprehensive health examination every other year as well as see her mother. She believed that it would be a better deal to visit Korea to get health care because of their universal health care system. The comprehensive examination she had in Korea includes blood test, eyesight test, and varous types of cancer screening such as a mammogram, Pap test, and colonoscopy. She reported to have a mammogram once in the U.S. through a free service when she was concerned about her breasts when she first immigrated. Her friends, who used free mammogram services, informed her to get one for free.

> Mrs. Oh: Our family bought health insurance and other types of insurances (e.g., life insurance) right after we immigrated in this country. But they have very limited coverage...just for emergency purposes. For example, I cannot get a regular check-up using my health insurance. I have to pay a certain amount of money which is not cheap. I do not want to spend that money. I visit Korea every other year to meet my mother. You know.. we have really good health care system in Korea. So, I have comprehensive exam

> whenever I visit. It is extremely cheap compared to US, which I think it is a reasonable price. Plus, it is very convenient.. language, culture.. and all the process to get the exams..Ah.. one time I had a mammogram in here. It was at the beginning... At that time, I went to adult schools to learn English. People said that there are free mammogram services...so I used it because I was worried about the health of my breasts. After that I did not have a screening here. I just go to Korea and get it in there.

A few particpants in group 3 reported that they had a mammogram regularly in Korea but were not able to in the U.S. because they did not have health insurance. For example, Mrs.Shin had her first mammogram when she was 27 years old. Her company provides a comprehensive health examination packet, so she initiated her first mammogram early. After she moved to the U.S., she stopped getting a mammogram as well as other health check-ups. She could not afford to buy health insurance. She is currently considering buying a health insurance via Obamacare. Similary, Mrs. Bo had multiple breast cancer screening experiences but she had all the screenings in Korea. She did not get one after she immigrated due to insurance costs. Last year, she bought health insurance via Obamacare. She is planning to get a regular check-up with a mammogram soon.

> Mrs. Bo: The whole medical conditions are getting better in this country because of Obamacare. I did not even think to buy health insurance because it is too expensive in the past. I could not afford it. I really appreciate former president, Obama. I am abled to get a health insurance because of him. Now I can get a regular check-up if I want. Of course, it would be a challenge to make time for it because of my business. but... I can find the time if I want to.

> Medical expenses were one of the biggest barriers for me. You know what I mean. In the past, I did not have a choice because I did not have insurance. I can choose if I want to have a check-up now.

Complicated and time consuming procedure. All participants agreed that the mammogram itself is a quick procedure but the process to getting a mammogram is too complicated and timing consuming, which is inconvenient for them given their busy lives. Most particpants reported that they do not have enough time to get through all the processes to getting a mammogram: seeing a doctor to get a referral, waiting for insurance approval, and getting a mammogram. At times when they scheduled their mammogram they may end up missing appointments due to being busy or forgetting their scheduled appointments. This makes it difficult to reschedule and they end up not completing a mammogram. Furthermore, particpants who were self-employed reported additional challenges such as having to close their business to complete a mammogram.

Despite it being complicated and time consuming, some participants were screened. Their strong determination influenced them to keep their screening appointments. For instance, Mrs. Hwang said that cancer screening became a priority in her life, thus she could get through all the complicated procedures to complete mammogram.

> Mrs. Hwang: As I said before, it is important to prioritize your health and get a mammogram. It is not an easy process to go through. . I understand because my two brothers had colorectal cancer and I have observed the treatment procedures…so, I am concerned about cancer and understand the importance of early detection of cancer. For some women, it is more important to give rides to their children, meet people for their businesses, and take

> care of their family. It is not easy to have preventive care even though you are not sick in this busy LA life. And, the health care system is really bad.

Other challenges the participants reported included language barriers, radiation exposure, age, and transportation. Some particpants (n=6) talked about language barriers those who have less accessibility to most Korean-speaking health care professonals work. For example, Mrs. Chung said that she used phone interpreter services when she had health issues. The services were helpful but she was not satisfied with it, thus she did not go to the hospital. This naturally impacted her behavior about screening since she has limited access to health services because of language. A few participants (n=4) commented on radiation exposure. Two participants said that they were concerned about radiation exposures during mammogram, which led them to avoid mammography. Addtionally, two persons said that getting a regular mammogram would be beneficial rather than not getting one. In terms of age, Mrs. Jeon said that she is too old to get a mammogram. Her recent mammogram was 2013 and she decided not get it anymore due to her age. Her physican still recommened that she gets a mammogram but she ignored his recommendation. She did not think that she would get surgery if she finds out she has cancer at her age. Another participant, Mrs. Im, mentioned transporation issues. She could drive but felt afraid driving on the highway. She must ask her husband to help drive her to get a mammogram, but she refused to get one since her husband has a busy schedule.

Chapter Seven

Discussion and Implications

This study investigated the problem of Korean immigrant women's low breast cancer screening participation with particular emphasis on cultural aspects, using a mixed modality approach. They were found to take the least advantage of mammography screening that is known as an effective tool for early detection and timely treatment for breast cancer. A mixed methodology, in particular an explanatory sequential design (Creswell, 2015), allowed for a rich and deeper understanding of the complexity and dynamics embedded in their screening behavior. The quanitative phase of this study was designed to identify facilitators and barriers to breast cancer screening. The qualitative phase of this study provided a comprehensive and contextual description of Korean immigrant women's views on breast cancer and breast cancer screening to better explain the identified facilitators and barriers of screening from the quantitative study.

In the following section, the results of quantitative study and the findings of qualitative study in Korean sociocultural context, respectively, are discussed. And then, the findings are discussed together to better understand Korean immigrant women's screening behavior. This section also includes study limitations, implications for research, practice, policy, and conclusion.

Discussion of Quantitative Study Results in Korean Sociocultural Context

This section discusses the results of quantitative study: 1) attitudes and beliefs about breast cancer and breast cancer screening, 2) breast cancer screening rates, and 3) facilitators and barriers to breast cancer screening.

Attitudes and beliefs about breast cancer and breast cancer screening

In terms of Korean immigrant women's attitudes and beliefs about breast cancer and breast cancer screening, study participants had high levels of fatalistic attitudes on health, a higher level of preventive health orientation, lower level of perceived susceptibility to breast cancer, higher level of perceived benefits to breast cancer screening, various perceived barriers to breast cancer screening, and higher level of self-efficacy.

It is ironic that participants had a higher level of fatalistic attitudes towards health and preventive health orientation simultaneously, because it is known that fatalistic health attitudes could contribute to the lack of preventive health orientation and practices resulting in health disparities (Liang, Yuan, Madelblatt, & Pasick, 2004; Nelson, Geiger, & Mangione, 2002; Niederdeppe, & Levy, 2007). A later section will focus in detail on Korean immigrant women's beliefs and the effects of their beliefs on their screening behavior.

Most participants believed that they were not going to get breast cancer in their life. Around 92.9% disagreed on their chances of getting breast cancer in the next few years and 89.1% believed they would not have breast cancer during their life. This is an interesting point given that approximately 38.3% reported that they had family history with cancer. This implies that they might have limited knowledges on risk factors for cancer. For example, they might think cancer history in their family is not a major risk for cancer.

Study participants understood the efficacy of breast cancer screening, which indicated that they are aware of the importance of early detection of breast cancer. For

example, approximately 91.9% indicated that having a mammogram will help to find breast lumps and 87.7% reported having a mammogram will reduce their chances of dying from breast cancer.

Various barriers to breast cancer screening were reported. Participants were mostly concerned about radiation exposure (50%), scheduling (34.9%), pain (30.7%), embarrassment (30.2%), communication (30.2%), time consuming (29.7%), and lack of information (26.9%). They also worried about the results (21.3%), age (17.5%), and cost (17.4%). It seems some of the barriers were rooted in accessibility to health care services, such as communication and financial expenses. Despite these barriers, they showed a higher level of confidence to getting a mammogram if they were worried about their breasts (94.4%) and if they really wanted to get it (92.9%). On the other hand, they reported a lack of confidence of finding ways to pay for a mammogram (17.9%) and information to aid in finding a health clinic to have a mammogram (15.1%). These issues indicated that the major challenges to screening could be financial costs and resources, which could improve policies for preventive health practices (e.g. health education).

Breast cancer screening rates

In general, study participants reported low screening rates, specifically when recent screening was taken into account. Approximately 90% had a mammogram in their life time and among them 62.2% had a mammogram in the past 2 years. Around 10% had never been screened. These screening rates were higher compared to previous studies only focusing on Korean immigrant women: 65.4% - 81.2% ever had a mammogram, 16% - 45.3% had a mammogram in the past 2 years, and 22.35% - 25% had never been screened (Juon, Kim, Shankar, & Han, 2004; Lee, Fogg, & Salder, 2006; Lee et al., 2015).

It could be reasonable to assume the increased screening rates were influenced by the geographical location where this study was conducted, national cancer screening program of Korea, and increased awareness of breast cancer screenings. First, this study was conducted in Los Angeles, California, where the biggest Korean community is located in the U.S. It implies that the study participants have high accessibility to Korean-language speaking health care professionals compared to women residing in other regions of U.S., even though 30% reported language as a barrier to breast cancer screening. The previous studies noted were conducted in various regions of Maryland, Illinois, and northeastern area in the U.S. They may have had more limited access to Korean-speaking health care professionals compared to Los Angeles. Second, Korea's national cancer screening program might have played a role in increasing their screening rates. In Korea, the national screening program was launched in 1999. Since that time, people who have health insurance in Korea have been able to get screening without charge or at a very low cost (Kim, Jun, Choi, Lee, & Park, 2011). Recent immigrants were familiar with the screening program and might have had chances to get screened through the program. Around 30.4% had their first mammogram in Korea and 28% had a mammogram in Korea after they immigrated to the U.S. Lastly, most participants were aware of the effectiveness of mammograms to detect breast cancer. As noted earlier, they believed that breast cancer is an effective method to detecting breast cancer.

Facilitators and barriers to breast cancer screening

The result of multiple logistic regression analysis of breast cancer screening by predisposing, enabling, and need-related factors revealed that three facilitators (a predisposing factor of fatalism, and two enabling factors of regular check-up and heard

about mammogram experience) and one barrier (an enabling factor of perceived barriers) significantly predicted their screening behavior. There were no significant associations between screening behavior and sociodemoraphic characteristics (e.g., age and education) as well as their needs (e.g., family cancer history).

Interestingly, one predisposing factor of fatalism was identified as a facilitator of screening uptake. Korean immigrant women who had high levels of fatalistic attitudes tended to get a mammogram in the past 2 years. More interestingly, they had high cancer fatalism. For example, approximately 37.3% believed that they would get cancer if they were meant to get it and 33% thought they would get cancer no matter regardless of what they do, they will get cancer. Around 46.7% indicated that the best way to prevent them from getting cancer would be to not think about cancer. It is known that cancer fatalism has been linked to low cancer screening rates, delays in cancer treatment after diagnosis, and reluctance to engage in healthy lifestyle practices to reduce cancer risks. People with fatalistic attitudes tended to feel that there was nothing they could do to prevent or avoid cancer (Liang et al., 2004; Nelson et al., 2002; Niederdeppe, & Levy, 2007).

In addition, two enabling factors of regular check-up and heard about mammogram facilitated screening uptake. Study participants who had a regular check-up were more likely to get a mammogram in the past 2 years. This finding is consistent with previous studies (Han et al., 2000; Lee et al., 2014). It implies that a regular source of health care plays an important role in Korean immigrant women's access to breast cancer screening.

Furthermore, study participants who heard about mammogram experience from their family, friends, and neighbor were more likely to get a mammogram in the past 2

years. This implies that social network plays an important role in facilitating women's screening behavior in Korean immigrant community. Approximately 88.2% study participants reported that they heard about their family, friends, and neighbor's screening experiences and 78.1% indicated that the experiences were helpful to deciding to get a mammogram. Similarly, previous studies presented the effect of social network (e.g., the size of social network and social relations) and social support on cancer screening practices (Allen et al., 1999; Allen et al., 2008; Suarez et al., 1994).

Lastly, another enabling factor of perceived barriers was identified as a barrier to breast cancer screening. Korean immigrant women who had high level of perceived barriers were less likely to have a mammogram.

Overall, the conceptual framework guided by Andersen's behavior model and Health Belief Model were useful in understanding screening behavior in Korean immigrant women, in particular understanding of cultural beliefs as well as enabling factors that could be changed through interventions or health care policies. The Andersen's behavior model assumed that an individual's decision on preventive care would be influenced by more predisposing and enabling factors than need factors (Andersen, 1968). The finding of this study supported the assumption.

Discussion of Qualitative Study Findings in Korean Sociocultural Context

This section discusses the findings from qualitative analysis, specially focused on three themes: 1) fear of breast cancer, 2) beliefs about breast cancer prevention, and 3) motivations and challenges to breast cancer screening.

Fear of breast cancer

Breast cancer was viewed as a fearful subject by Korean immigrant women. They had various fears of breast cancer, including getting breast cancer, losing femininity by breast removal, chemotherapy treatment procedure, the possibility of relapse, and death. Participants who had high levels of fear about breast cancer were more likely to adhere to breast cancer screening. There are three key elements creating fears for these women. First, some participants had risk factors for breast cancer such as limited breastfeeding experiences, having a family history with cancer, and having dense breast tissues. They are aware of their higher chances of being getting breast cancer as compared to those with lower risks of getting breast cancer. Second, they have families, friends, and a neighbor diagnosed with breast cancer or other types of cancer. They have heard and observed their loved ones suffered from breast removal, chemotherapy, cancer recurrence, as well as died from cancer. These observations and exposures increased their awareness of cancer and cancer screening, which led them to conclude that it is better to find cancer at an early stage. Lastly, the mixed beliefs of fatalism and preventive health orientation seem to influence their fear of breast cancer. Most participants who tended to adhere to screening strongly believed that they would not have breast cancer if they manage their health well and get a regular screening. However, their beliefs were broken since they knew people who did not have family history of cancer, kept healthy diets, and had a regular check-up, but were diagnosed with breast cancer or other type of cancer. They thought getting cancer might be “mystery” and “bad luck” or “random’, which increased their fear of the possibility to have cancer in their life even though they maintained a healthy life style and had a regular screening. At the same time, they thought they would like to do their best to prevent it or detect it at an early stage if they

had cancer because they would not want to have feelings of regret when cancer was found.

Beliefs about breast cancer prevention

Most participants believed that breast cancer could be prevented. They highlighted this can be accomplished by maintaining a healthy lifestyle such as managing their stress levels and having healthy diets (e.g. daily exercises & healthy food), and by avoiding using HRT. In addition, they thought that breast cancer screening is a useful method in detecting cancer. Participants who tended to adhere to a screening routine mentioned having a regular mammogram while maintaining a healthy lifestyle, despite having different opinions on the number of screenings they need to complete. On the other hand, participants who were less likely to adhere to a screening routine tended to practice breast self-exams due to reasons of feeling safe from breast cancer and having a lack of health insurance. Interestingly, they believed that the proper time for a mammography screening is when there are unusual breast symptoms that appeared during self-exams. They tended to rely on "self-diagnosis" to detect breast cancer.

Motivations and challenges to breast cancer screening

Overall, participants had similar motivations and challenges to breast cancer screening. Participants who adhere to a screening reported that being fearful of breast cancer made them have a regular screening or influenced them to initiate their first mammogram. The participants also had a higher level of preventive health orientation along with health insurance which resulted in an increase in their access to health care services such as breast cancer screening. Their physicians helped remind them to complete a breast cancer screening whenever they had a regular check-up. A few

participants were recently insured through Obamacare, MediCal, or Medicaid. Some participants reported feeling burdened in buying health insurance, thus they waited to get government funded health insurance. Interestingly, a few participants had health insurance but the coverage was very limited. They reported that they did not want to spend too much money on it, and instead purchased health insurance for only emergency uses. The participants are used to having universal health care back in Korea. Although they had a limited health insurance plan or no health insurance, they completed mammograms through programs/services that offer free mammogram screenings. On the other hand, participants who were less likely to adhere to a screening were less concerned about breast cancer. They experienced screening at random. They reported that they would get a mammogram if they were worried or wanted to get one. Their lack of health insurance was another issue for not being screened.

The participants reported various challenges to breast cancer screening. The most common challenges included physical pain, being uncomfortable and embarrassed, lack of health insurance, and complicated and timing consuming procedures. Other challenges included language issues, radiation exposure, age, and transportation. These barriers (e.g., health insurance, language, and complicated and timing consuming procedure) seemed to have emerged because the participants were expecting the similar health care system back in Korea where there is a universal health care system and procedures to getting services were faster due to there being no medical referral requirements. In order to address health challenges, some participants with family still living in Korea completed medical examinations when visiting their family. The Korean government operates a universal health care system, thus medical services are more affordable for those without health

insurance in Korea (Choi et al., 2010; Lee et al., 2013). The participants felt comfortable using medical services in Korea since they share the same language and culture with health professionals, service costs are low, and services are quick (e.g. one-stop service). In addition, after getting medical services in Korea, they can spend quality time with family and friends. In Korea, many hospitals are large scale and provide a variety of special care within one location. The large hospitals provide easier visits for various check-ups if patients have multiple health issues. If physcians are unsure about their patients' illnesses, they could refer the patients to specialists on the same day, and make the health check-ups quicker (Lee, 1996; Lee, Kearn, & Friesen, 2010).

The Interface of the Results of Quantitative and Qualitative Studies

This section synthetically discusses the findings of quantitative and qualitative studies to deeply understand Korean immigrant women's breast cancer screening behavior, focusing on facilitators and barriers to breast cancer screening. As noted earlier, the quantitative phase of the study identified three facilitators (fatalism, regular check-up, heard about mammogram experience) and one barrier (perceived barriers to screening). The qualitative phase of the study found five motivations (fear, preventive orientation, health insurance, doctors' recommendation, and family support) and various challenges (e.g., pain, uncomfortable and embarrassing, lack or limited health insurance, and complicated and timing consuming procedure).

It is an unexpected finding that fatalistic attitudes facilitated to breast cancer screening in Korean immigrant women because it is inconsistent with previous studies (Nelson et al., 2002; Niederdeppe, & Levy, 2007). It is known that women who have fatalistic attitudes are less likely to get a mammogram but the finding of this study shows

an inverse direction. What contributes to this inverse path? Korean immigrant women might adopt preventive health orientation/practices while holding fatalistic attitudes on health. The qualitative phase of the study found that Korean immigrant women who had a higher level of fear about breast cancer typically adhered to screening. They observed many loved ones who suffered from cancer including breast cancer. These observations increased their fears of breast cancer resulting in significantly increasing their awareness of preventive health orientation/practices. Fear of having breast cancer led women with health insurance to maintained screenings. Fears also motivated the women with limited or no health insurance to actively search for free/low cost mammogram services. This reflects their confidence to get a mammogram if they are worried about their breasts (94.4%) and if they really wanted to get it (92.9%). A few study participants recently enrolled in Obamacare, MediCal, or Medicaid. Their health insurance a boosted their accessibility to health care services, which enabled them to have a regular check-up. Their health care providers recommended them to have a mammogram during regular check-ups, and most of them followed through with the recommendation.

More interestingly, a few participants who adhered to screening did not think that cancer such as breast cancer could be prevented. They had seen many people who had cancer and passed away from cancer despite maintaining a healthy lifestyle and regular check-ups. Their observations partly reinforced their fatalistic attitudes on health. They thought being diagnosed with cancer is based on a "mystery, bad luck, or by random." Despites these attitudes, they wanted to maintain their screening. They believed that it would be better to find cancer at an early stage to avoid having feelings of regrets or guilt if it ws too late.

Study participants reported very similar barriers in both the quantitative and qualitative study: pain, discomfort and embarrassment, cost (lack of or limited health insurance), complicated and timing consuming procedures, language issues, radiation exposure, age, and transportation. Given that they showed the least confidence on finding ways to pay for a mammogram (17.9%) and information about to finding a place to have a mammogram (15.1%), their major challenges could mostly be the cost and finding information. The participants also shared their strategies to deal with these challenges. For example, some participants used free/low mammogram services or waited for to get government funded health insurance. Others visited Korea to receive medical examination including cancer screening. Korea has a universal health care system and medical services are more affordable for those without health insurance (Choi et al., 2010; Lee et al., 2013). Getting medical services in Korea solved multiple challenges such as language barriers, and complicated and timing consuming procedures; meanwhile, giving them an opportunity to enjoy quality time with their families and friends.

Implications for Social Work Practice, Policy, and Research

The findings of this study have several implications for practice, policy, and research in the field of social work. A better understanding of Korean immigrant women's breast cancer screening behavior would contribute to improving the quality of services resulting in reduced health disparities in this population. This section discusses in detail how the key study's findings provide implications for practice, policy, and research.

First, this study has implications for health education to promote breast cancer screening. The health education for Korean immigrant women should consider cultural

and health beliefs. This study shows that Korean immigrant women have unique cultural health beliefs. They hold fatalistic views and at the same time they adopted preventive health pratices rooted in fears of breast cancer. Social workers and other health care professionals need to understand this unique cultural health belief to develop more effective and culturally-tailored health educational interventions to promote breast cancer screening in this population. It would be useful to have various Korean immigrant women's breast cancer cases in health education to increase the women's awareness to breast cancer screening. In addition, it would be important to incorporate women's screening experiences in health education, since significantly influences their screening behavior. Health education should be within context by encouraging women to establish a health care routine that involves having a regular check-up to promote breast cancer screening. Furthermore, health education should be combined with strategies to increase health care accessibility such as free and bilingual screening services, and the assistance of scheduling for screening, given the reported various barriers.

Furthermore, we should consider health education for healthcare professionals. This study indicates that Korean immigrant women are not aware of screening guidelines despite following their primay physican's recommendation. This implies that healthcare professionals play an important role in promoting breast cancer screening in this population. The role of social workers may include educating healthcare professtionals to be more culturally competent. For example, social workers can advocate for clients' access to services, receiving breast cancer screening, and connecting them to health insurance that will provide them the opportunity to establish care relationships with healthcare professionals and obtain a mammogram. They can also advocate at the macro

level for social changes that will serve to benefit women to get access to free mammogram in not just California but other states in the U.S. This may also include working with health care professionsals to ensure patients are receiving the accurate mammograms per year as well as advocating for interpreters who speak their language, or by finding different health professionals who speak their language.

Next, more efforts should be made to ensure there is an equal access to breast cancer prevention services among Korean immigrant women. The finding of this study, in particularly the qualitative phrase, shows that a number of women were recently insured through Obamacare, which enabled them to have access to health care services in the U.S. However, there are still women who have limited health insurance coverage or do not have health insurance. Some of them even traveled to Korea to get health examinations including cancer screening.

Lastly, this study has implications for future research. At the time of the data collection, the Obamacare had been implemented for a couple of years. As noted earlier, a number of Korean immigrant women have been insured through Obamacare. Future studies need to examine the impact of the Affordable Care Act on insurance coverage for this population as well as on their breast cancer screening behavior (Choi et al., 2017; Lee et al., 2014). This study also implies that social network and social support played an important role in promoting screening behavior in this population. Given that women in ethnic minority groups tend to obtain health information through their social networks (Suarez et al., 1994), more studies need to investigate how social network characteristics and social networks influence Korean immigrant women's screening behavior.

Limitations of Study

Although there are many interesting points in this study, the findings of the study should be interpreted with caution due to several limitations. First, study participants were recruited in Los Angeles, California and they were not representative of Koreans in the area because of non-probability and purposeful sampling methods. Los Angeles is one of the areas where public services are more available to immigrant populations than other regions in the U.S. In addition, the biggest Korean community is in Los Angeles, meaning that Korean immigrants have a higher access to Korean speaking health care providers compared to other regions. The regional differences and non-probability sampling limited the generalizability of the findings. Secondly, this study employed a cross-sectional design that captures a population in a single point time. Thus, it is difficult to determine the temporality of the relationships examined in the study. Lastly, study participants may have provided socially desirable answers that could impact the accuracy of the data. The screening rates may differ from their records from health care professionls. Several studies established that self-reports usually overestimate the prevalence of cancer screening (Juon et al., 2000; McPhee et al., 2002), however the self-reports are faiarly reliable. A replication of a study with a longitudinal research design and a valid measurement tool would provide a more accurate understanding of Korean immigrant women's breast cancer screening behavior and the different factors affecting their behaviors.

Conclusion

This study contributes to the knowledge of Korean immigrant women's breast cancer screening behavior, in particular in the field of social work. The majority of

previous studies in this population were conducted in the fields of nursing and public health, while only a few studies were from the social work field (Choi, Koh, Choi, & Cho, 2017; Lee, Ju, Vnag, & Lundquist, 2010; Lee, Stange, & Ahluwalia, 2015). Given that the social work profession commits to social justice issues, more efforts need to expand our knowledge and understanding of health disparities including preventive practices on cancer in the social work field (Choi, Koh, Choi, & Cho, 2017). The study findings highlight the effects of cultural aspects on breast cancer screening behavior and present implications for social work policies and practices.

References

Allen, J. D., Sorensen, G., Stoddard, A. M., Peterson, K. E., & Colditz, G. (1999). The relationship between social network characteristics and breast cancer screening practices among employed women. *Annals of Behavioral Medicine*, 21(3), 193-200.

Allen, J. D., Stoddard, A. M., & Sorensen, G. (2008). Do social network characteristics predict mammography screening practices?. *Health Education & Behavior*, 35(6), 763-776.

Andersen, R. (1995). Revisiting the behavioral model and access to medical care: does it matter?. *Journal of Health and Social Behavior* 36, 1-10.

Anderson, R.M., & Newman, J.F. (1973). Societal and individual determinants of medical care utilization in the United States, *Milbank Quarterly*, 51(1), 95-124.

American Cancer Society. (2013b). Breast cancer facts and figures 2013-2014. Retrived from http:// www.cancer.org/reserach /cancerfactsstatistics/.

Bazargan, M., Bazargan, S. H., Farooq, M., & Baker, R. S. (2004). Correlates of cervical cancer screening among underserved Hispanic and African-American women. *Preventive Medicine*, 39(3), 465-473.

Berg, W. A., Blume, J. D., Cormack, J. B., Mendelson, E. B., Lehrer, D., Böhm-Vélez, M., ... & ACRIN 6666 Investigators. (2008). Combined screening with ultrasound and mammography vs mammography alone in women at elevated risk of breast cancer. *JAMA*, 299(18), 2151-2163.

Blackwell, D. L., Martinez, M. E., Gentleman, J. F., Sanmartin, C., & Berthelot, J. M. (2009). Socioeconomic status and utilization of health care services in Canada and the United States: findings from a binational health survey. *Medical care*, *47*(11), 1136-1146.

Bradley, E. H., McGraw, S. A., Curry, L., Buckser, A., King, K. L., Kasl, S. V., & Andersen, R. (2002). Expanding the Andersen Model: The Role of Psychosocial Factors in Long-Term Care Use. *Health services research*, *37*(5), 1221-1242.

Brown, E. R., Davidson, P. L., Yu, H., Wyn, R., Andersen, R. M., Becerra, L., & Razack, N. (2004). Effects of community factors on access to ambulatory care for lower-income adults in large urban communities. *INQUIRY: The Journal of Health Care Organization, Provision, and Financing*, *41*(1), 39-56.

Carmen, M. G., Halpern, E. F., Kopans, D. B., Moy, B., Moore, R. H., Goss, P. E., & Hughes, K. S. (2007). Mammographic breast density and race. *American Journal of Roentgenology*, 188(4), 1147-1150.

Carney, P. A., Miglioretti, D. L., Yankaskas, B. C., Kerlikowske, K., Rosenberg, R., Rutter, C. M., ... & Ballard-Barbash, R. (2003). Individual and combined effects of age, breast density, and hormone replacement therapy use on the accuracy of screening mammography. *Annals of Internal Medicine*, 138(3), 168-175.

Centers for Disease Control and Prevention (CDC). (2012). Cancer Screening – United States, 2010. *Morbidity and Mortality Weekly Report*, 61(3), 41-45.

Champion, V.L & Skinner, C.S. (2008). The Health Belief Model. p.45-65. In: Glanz, K., Rimer, B. K., & Viswanath, K. (Eds.). (2008). *Health behavior and health education: theory, research, and practice*. John Wiley & Sons.

Charmaz, K. (1990). Discovering Chronic Illness: Using grounded theory. *Social Science Medicine*, 30(11), 1161-1172.

Charmaz, K. (2006). *Constructing grounded theory: A practical guide through qualitative analysis.* Thousand Oaks, CA: Sage.

Chen, A., Ng, P., Sam, P., Ng, D., Abe, D., Ott, R., ... & Wong, W. F. (1993). Special health problems of Asians and Pacific Islanders. *Clinical Preventive Medicine*, 739-761.

Choi, G. Y., Koh, E., Choi, S., & Cho, J. Y. (2017). Understanding breast cancer screening behaviors of Korean American women in sociocultural contexts. *Social Work in Health Care*, 56(1), 45-63.

Coughlin, S. S., & Uhler, R. J. (2000). Breast and cervical cancer screening practices among Asian and Pacific Islander women in the United States, 1994–1997. *Cancer Epidemiology Biomarkers & Prevention*, 9(6), 597-603.

Corbin, J. & Strauss, A. (2008). *Basics of Qualitative Research*. Los Angeles: Sage Publications.

Corbin, J. M., & Strauss, A. (1990). Grounded theory research: Procedures, canons, and evaluative criteria. *Qualitative Sociology*, 13(1), 3-21.

Cyrus-David, M. S. (2010). Knowledge and accuracy of perceived personal risk in underserved women who are at increased risk of breast cancer. *Journal of Cancer Education*, *25*(4), 617-623.

Deapen, D., Liu, L., Perkins, C., Bernstein, L., & Ross, R. K. (2002). Rapidly rising breast cancer incidence rates among Asian-American women. *International Journal of Cancer*, 99(5), 747-750.

DeSantis, C., Ma, J., Bryan, L., & Jemal, A. (2014). Breast cancer statistics, 2013. CA: A *Cancer Journal for Clinicians*, 64(1), 52-62.

Donovan, K. A., & Tucker, D. C. (2000). Knowledge about genetic risk for breast cancer and perceptions of genetic testing in a sociodemographically diverse sample. *Journal of Behavioral Medicine*, *23*(1), 15-36.

Elmore, J. G., Armstrong, K., Lehman, C. D., & Fletcher, S. W. (2005). Screening for breast cancer. *JAMA*, 293(10), 1245-1256.

Engelman, K. K., Cizik, A. M., & Ellerbeck, E. F. (2006). Women's satisfaction with their mammography experience: results of a qualitative study. *Women & Health*, 42(4), 17-35.

Eun, Y., Lee, E. E., Kim, M. J., & Fogg, L. (2009). Breast cancer screening beliefs among older Korean American women. *Journal of gerontological nursing*, *35*(9), 40.

Glaser, B. & Strauss, A. (1967). *The discovery of grounded theory: Strategies for qualitative research*. New Brunswick: Aldine.

Gomez, S. L., Noone, A. M., Lichtensztajn, D. Y., Scoppa, S., Gibson, J. T., Liu, L., ... & Miller, B. A. (2013). Cancer incidence trends among Asian American populations in the United States, 1990 to 2008. *Journal of the National Cancer Institute*, djt157.

Gøtzsche, P. C., & Olsen, O. (2000). Is screening for breast cancer with mammography justifiable?. *The Lancet*, 355(9198), 129-134.

Gray, B., & Stoddard, J. J. (1997). Patient-physician pairing: does racial and ethnic congruity influence selection of a regular physician?. *Journal of Community Health*, 22(4), 247-259.

Green, L.W. & Kreuter, M.W. (1991). *Health promotion planning: an educational and environmental approach*. Mountain View, CA: Mayfield.

Guidry, J. J., Matthews-Juarez, P., & Copeland, V. A. (2003). Barriers to breast cancer control for African-American women. *Cancer*, 97(S1), 318-323.

Ham, O. K. (2006). Factors affecting mammography behavior and intention among Korean women, *Oncology Nursing Forum*, 33(1), 113-119.

Han, H-R., Lee, H., Kim. M.T., & Kim, K.B. (2009). Tailored lay health worker intervention improves breast cancer screening outcomes in non-adherent Korean-American women. *Health Education Research*, 24(2), 318-329.

Han, Y., Williams, R.D., & Harrison, R.A. (2000). Breast cancer screening knowledge, attitudes, and practices among Korean American women. *Oncology Nursing Forum,* 27(10), 1585-1591.

Hochbaum, G., Rosenstock, I., & Kegels, S. (1952). *Health Belief Model.* United States Public Health Service.

Hochhausen, L., Le, H. N., & Perry, D. F. (2011). Community-based mental health service utilization among low-income Latina immigrants. *Community mental health journal, 47*(1), 14-23.

Hoeffel, E. M., Rastogi, S., Kim, M. O., & Hasan, S. (2012). *The Asian population: 2010*. US Department of Commerce, Economics and Statistics Administration, US Census Bureau.

House, J. S. (1981). Work stress and social support. Retrieved from http://babel.hathitrust.org/cgi/pt?id=mdp.39015071886035;view=1up;seq=5

Howlader N, Noone AM, Krapcho M, Garshell J, Miller D, Altekruse SF, Kosary CL, Yu M, Ruhl J, Tatalovich Z, Mariotto A, Lewis DR, Chen HS, Feuer EJ, Cronin KA (eds) (2015). *SEER Cancer Statistics Review, 1975-20*12, National Cancer Institute. Bethesda, MD, http://seer.cancer.gov/csr/1975_2012/, based on November 2014 SEER data submission, posted to the SEER web site, April 2015.

Hurdle, D. E. (2001). Social support: A critical factor in women's health and health promotion. *Health and Social Work, 26*(2), 72-79.

Ivanov, L. L., Hu, J., & Leak, A. (2010). Immigrant women's cancer screening behaviors. *Journal of community health nursing*, *27*(1), 32-45.

Jemal., A., Clegg, E., Ward, L., et al (2004). Annual report to the nation on the status of cancer, 1975-2001, with a special feature regarding survival. *Cancer*, 101, 3-27

Juon, H-S., Kim, M., Shankar, S., & Han, Wolmi. (2004). Predictors of adherence to screening mammography among Korean American women. *Preventive Medicine*, 39, 474-481.

Juon, H-S., Seo, Y.J., & Kim, M. (2002). Breast and cervical cancer screening among Korean American elderly women, *European Journal of Oncology Nursing*, 6(4), 228-215.

Juon, H. S., Choi, Y., & Kim, M. T. (2000). Cancer screening behaviors among Korean-American women. *Cancer Detection and Prevention*, 24 (6), 589-601

Juon, H. S., Seung-Lee, C., & Klassen, A. C. (2003). Predictors of regular Pap smears among Korean-American women. *Preventive Medicine*, 37(6), 585-592.

Kagawa-Singer, M., & Pourat, N. (2000). Asian American and Pacific Islander breast and cervical carcinoma screening rates and healthy people 2000 objectives. *Cancer*, 89(3), 696-705.

Kagawa-Singer, M., Pourat, N., Breen, N., Coughlin, S., McLean, T. A., McNeel, T. S., & Ponce, N. A. (2007). Breast and cervical cancer screening rates of subgroups of Asian American women in California. *Medical Care Research and Review*. 64(6), 706-730.

Keating, N. L., O'Malley, A. J., Murabito, J. M., Smith, K. P., & Christakis, N. A. (2011). Minimal social network effects evident in cancer screening behavior. *Cancer, 117*(13), 3045-3052.

Kerlikowske, K., Hubbard, R. A., Miglioretti, D. L., Geller, B. M., Yankaskas, B. C., Lehman, C. D., ... & Sickles, E. A. (2011). Comparative effectiveness of digital versus film-screen mammography in community practice in the United States: a cohort study. *Annals of Internal Medicine*, 155(8), 493-502.

Kim, Y., Jun, J. K., Choi, K. S., Lee, H. Y., & Park, E. C. (2011). Overview of the National Cancer screening programme and the cancer screening status in Korea.

Asian Pacific Journal of Cancer Prevention, 12(3), 725-730.

Kim, Y.H., & Sarna, L. (2004). An intervention to increase mammography use by Korean American women. *Oncology Nursing Forum*, 31(1), 105-110.

Lagerlund, M., Hedin, A., Sparén, P., Thurfjell, E., & Lambe, M. (2000). Attitudes, beliefs, and knowledge as predictors of nonattendance in a Swedish population-based mammography screening program. *Preventive medicine*, *31*(4), 417-428.

Lee-Lin, F., Menon, U., Pett, M., Nail, L., Lee, S., & Mooney, K. (2007). Breast cancer beliefs and mammography screening practices among Chinese American immigrants. Journal of Obstetric, *Gynecologic, & Neonatal Nursing*, 36(3), 212-221.

Lee, E. E., Fogg, L. F., & Sadler, G. R. (2006). Factors of breast cancer screening among Korean immigrants in the United States. *Journal of Immigrant and Minority Health*, 8(3), 223-233.

Lee, E. E., Fogg, L., & Menon, U. (2008). Knowledge and beliefs related to cervical cancer and screening among Korean American women. *Western Journal of Nursing Research*, 30(8), 960-974.

Lee, E. E., Tripp-Reimer, T., Miller, A. M., Sadler, G. R., & Lee, S. Y. (2007). Korean American women's beliefs about breast and cervical cancer and associated symbolic meanings. *Oncology Nursing Forum*, 34(3), 713- 720.

Lee, E.E., Fogg, L.F., Sadler, G.R. (2006). Factors of breast cancer screening among Korean immigrants in the United States. *Journal of Immigrant and Minority Health*, 8(3), 223-233.

Lee, H. Y., Ju, E., Vang, P. D., & Lundquist, M. (2010). Breast and Cervical Cancer Screening Disparity Among Asian American Women: Does Race/Ethnicity Matter?. *Journal of Women's Health*, 19(10), 1877-1884.

Lee, H., Kim, J., Han, H-R. (2009). Do cultural factors predict mammography behavior among Korean immigrants?. *Journal of Advanced Nursing*, 65(12), 2574-2584.

Lee, H.Y., Stange, M.J., & Ahluwalia, J.S. (2014). Breast cancer screening behaviors among Korean American immigrant women: findings from the health belief model, *Journal of Transcultural Nursing*, 1-8.

Lee, H. Y., Yang, P. N., Lee, D. K., & Ghebre, R. (2015). Cervical Cancer Screening Behavior among Hmong-American Immigrant Women. *American Journal of Health Behavior*, 39(3), 301-307.

Lee, E. E., Nandy, K., Szalacha, L., Park, H., Oh, K. M., Lee, J., & Menon, U. (2015). Korean American Women and Mammogram Uptake. *Journal of Immigrant and Minority Health*, 1-8.

Lee-Lin, F., Menon, U., Pett, M., Nail, L., Lee, S., & Mooney, K. (2007). Breast cancer beliefs and mammography screening practices among Chinese American immigrants. *Journal of Obstetric, Gynecologic, & Neonatal Nursing*, *36*(3), 212-221.

Lee, S. Y. (2015). Cultural Factors Associated with Breast and Cervical Cancer Screening in Korean American Women in the US: An Integrative Literature Review. *Asian Nursing Research*, 9, 81-90.

Leong-Wu, C. A., & Fernandez, M. E. (2006). Correlates of breast cancer screening among Asian Americans enrolled in Encore Plus. *Journal of Immigrant and Minority Health*, 8(3), 235-243.

Lew, A.L., Moskowitz, J.M., Ngo, L., et.al. (2003). Effect of provider status on preventive screening among Korean-American women in Alameda County, California. *Preventive Medicine*, 36, 141-149.

Liang, W., Wang, J. H., Chen, M. Y., Feng, S., Lee, M., Schwartz, M. D., ... & Mandelblatt, J. S. (2008). Developing and validating a measure of Chinese cultural views of health and cancer. *Health Education & Behavior*, *35*(3), 361-375.

Liang*, W., Yuan, E., Mandelblatt, J. S., & Pasick, R. J. (2004). How do older Chinese women view health and cancer screening? Results from focus groups and implications for interventions. *Ethnicity & health*, 9(3), 283-304.

Lincoln, Y.S. & Guba, E.G. (1985). *Naturalistic inquiry*. Newbury Park, CA: Sage Publications.

Lum, O. M. (1995). Health status of Asians and Pacific Islanders. *Clinics in Geriatric Medicine*, 11(1), 53-67.

Maxwell, A.E., Bastani, R., & Warda, U.S. (1998). Mammography utilization and related attitudes among Korean-American women, *Women & Health*, 27(3), 89-107.

McCracken, M., Olsen, M., Chen, M. S., Jemal, A., Thun, M., Cokkinides, V., ... & Ward, E. (2007). Cancer incidence, mortality, and associated risk factors among Asian Americans of Chinese, Filipino, Vietnamese, Korean, and Japanese ethnicities. *CA: A Cancer Journal for Clinicians*, 57(4), 190-205.

McPhee, S. J., Nguyen, T. T., Shema, S. J., Nguyen, B., Somkin, C., Vo, P., & Pasick, R. (2002). Validation of recall of breast and cervical cancer screening by women in an ethnically diverse population. *Preventive medicine*, 35(5), 463-473.

Messina, C. R., Lane, D. S., Glanz, K., West, D. S., Taylor, V., Frishman, W., & Powell, L. (2004). Relationship of social support and social burden to repeated breast cancer screening in the women's health initiative. *Health Psychology*, *23*(6), 582.

Miller, A. B., Baines, C. J., To, T., & Wall, C. (1992). Canadian National Breast Screening Study: 1. Breast cancer detection and death rates among women aged 40 to 49 years. CMAJ: *Canadian Medical Association Journal*, 147(10), 1459.

Miller, B. A., Chu, K. C., Hankey, B. F., & Ries, L. A. (2008). Cancer incidence and mortality patterns among specific Asian and Pacific Islander populations in the US. *Cancer Causes & Control*, 19(3), 227-256.

Miller, J. W., King, J. B., Joseph, D. A., Richardson, L. C., & Centers for Disease Control and Prevention (CDC). (2012). Breast cancer screening among adult women—behavioral risk factor surveillance system, United States, 2010. *Morbidity and Mortality Weekly Report*, 61(Suppl), 46-50.

Nelson, K., Geiger, A. M., & Mangione, C. M. (2002). Effect of Health Beliefs on Delays in Care for Abnormal Cervical Cytology in a Multiethnic Population. *Journal of General Internal Medicine*, 17(9), 709-716.

Niederdeppe, J., & Levy, A. G. (2007). Fatalistic beliefs about cancer prevention and three prevention behaviors. *Cancer Epidemiology and Prevention Biomarkers*, 16(5), 998-1003.

Patton, M. (2002). *Qualitative research and evaluation methods* (3rd Ed.). Thousand Oaks, CA: Sage

Pearlman, D. N., Clark, M. A., Rakowski, W., & Ehrich, B. (1999). Screening for breast and cervical cancers: the importance of knowledge and perceived cancer survivability. *Women & Health*, 28(4), 93-112.

Rahman, S. M., Dignan, M. B., & Shelton, B. J. (2005). A theory-based model for predicting adherence to guidelines for screening mammography among women age 40 and older. *International journal of cancer prevention*, *2*(3), 169.

Rubin, A., & Babbie, E. R. (2011). *Research Methods for Social Work*, (ed), Schopper, D., & de Wolf, C. (2009). How effective are breast cancer screening programmes by mammography? Review of the current evidence. European Journal of Cancer, 45(11), 1916-1923.

Spector, R. E. (2002). Cultural diversity in health and illness. *Journal of Transcultural Nursing*, 13(3), 197-199.

Siegel, R., Naishadham, D., & Jemal, A. (2012). Cancer statistics, 2012. CA: A Cancer *Journal for Clinicians*, 62(1), 10-29.

Smith, R. A., Brooks, D., Cokkinides, V., Saslow, D., & Brawley, O. W. (2013). Cancer screening in the United States, 2013. CA: *A Cancer Journal for Clinicians*, 63(2), 87-105.

Stein, J. A., Andersen, R. M., Robertson, M., & Gelberg, L. (2012). Impact of hepatitis B and C infection on health services utilization in homeless adults: a test of the Gelberg-Andersen Behavioral Model for Vulnerable Populations. *Health Psychology*, *31*(1), 20.

Stein, J. A., Andersen, R., & Gelberg, L. (2007). Applying the Gelberg-Andersen behavioral model for vulnerable populations to health services utilization in homeless women. *Journal of Health Psychology*, *12*(5), 791-804.

Strecher, V. J., & Rosenstock, I. M. (1997). The health belief model. Cambridge handbook of psychology, *Health and Medicine*, 113-117.

Suh, E.E. (2008). The sociocultural context of breast cancer screening among Korean immigrant women. *Cancer Nursing*, 31(4), El-E10.

Suarez, L., Lloyd, L., Weiss, N., Rainbolt, T., & Pulley, L. (1994). Effect of social networks on cancer-screening behavior of older Mexican-American women.

Journal of the National Cancer Institute, 86(10), 775-779.

Tang, T. S., Solomon, L. J., & McCracken, L. M. (2000). Cultural barriers to mammography, clinical breast exam, and breast self-exam among Chinese-American women 60 and older. *Preventive medicine*, 31(5), 575-583.

US Preventive Services Task Force. (2009). Screening for breast cancer: US Preventive Services Task Force recommendation statement. *Annals of Internal Medicine*, 151(10), 716.

Valdez, A., Banerjee, K., Ackerson, L., Fernandez, M., Otero-Sabogal, R., & Somkin, C. P. (2001). Correlates of breast cancer screening among low-income, low-education Latinas. *Preventive Medicine*, 33(5), 495-502.

Vyas, A., Madhavan, S., LeMasters, T., Atkins, E., Gainor, S., Kennedy, S., ... & Remick, S. (2012). Factors influencing adherence to mammography screening guidelines in Appalachian women participating in a mobile mammography program. *Journal of community health*, *37*(3), 632-646.

Wismer, B.A., Moskowitz, J.M., Chen, A.M., Kang, S.H., et.al. (1998). Mammography and clinical breast examination among Korean American women in two California counties. *Preventive Medicine*, 27, 144-151.

Wismer, B.A., Moskowitz, J.M., Min, K., Chen, A. M., et al. (2001). Interim assessment of a community intervention to improve breast and cervical cancer screening among Korean American women. *Journal of Public Health Management Practice*, 7(2), 61-70.

Wolinsky, F. D. (1978). Assessing the effects of predisposing, enabling, and illness-morbidity characteristics on health service utilization. *Journal of Health and Social Behavior*, 384-396.

Wu, T. Y., Bancroft, J., & Guthrie, B. (2005). An integrative review on breast cancer screening practice and correlates among Chinese, Korean, Filipino, and Asian Indian American women. *Health Care for Women International*, 26(3), 225-246.

Yoo, G. J., Le, M. N., Vong, S., Lagman, R., & Lam, A. G. (2011). Cervical cancer screening: attitudes and behaviors of young Asian American women. *Journal of Cancer Education*, 26(4), 740-746.

Yu, M. Y., Hong, O. S., & Seetoo, A. D. (2003). Uncovering factors contributing to under-utilization of breast cancer screening by Chinese and Korean women living in the United States. *Ethnicity & Disease*, 13(2), 213-219.

Zong, J., & Batalova, J. (2014). Korean Immigrants in the United States. Retrieved from http://www.migrationpolicy.org/article/korean-immigrants-united-states.

Appendix 1: Study Flyer (English)

Seeking Research Participants

Breast cancer is the most frequently diagnosed cancer among Korean immigrant women in the United States (U.S.). However, Korean immigrant women are reported to have low breast cancer screening rates compared to other racial/ethnic women. The purpose of this study is to understand breast cancer screening behaviors in Korean immigrant women through surveys and individual interviews.

The surveys are to identify factors associated with breast cancer screening uptake (for example, knowledge on breast cancer, screening, and cultural beliefs) in Korean immigrant women. The surveys will be conducted through face-to-face interviews at a time and location of participant's choice, using an online survey on an iPad. The survey will take approximately an hour to complete. Each study participant will be given **a $20 Target gift card** at the end of the interview as a compensation for her time.

The individual interviews aim to explore Korean immigrant women's views on breast cancer and breast cancer screening based on their screening experiences. Women who complete the surveys and agree to the individual interviews are able to participate in the interviews. The interviews may be audio recorded and will last approximately between 1 hour and 1.5 hours. The interviews will be conducted at a time and location of participant's choice, either in person or by phone. **An additional $20 Target gift card** will be provided to each participant at the end of interviews as an appreciation for their efforts.

Your participation will help me to develop culturally tailored intervention strategies to promote Korean immigrant women's breast cancer screening uptake.

Eligibility

1) Korean woman who was born and grew up in Korea, and immigrated in the U.S. as an adult
2) Who is currently residing in Los Angeles County, California
3) Who is between 40 and 79 years old,
4) Who is fluent in Korean language
5) Who have never been diagnosed with breast cancer

Contact Information

University of Minnesota, Twin Cities, School of Social Work
Mihwa Lee (Principle Investigator)
612-462-1462, leex4807@umn.edu

** This study is funded by the American Cancer Society.

Appendix 2: Study Flyer (Korean)

연구 참여자 모집

유방암은 미국에 거주하는 한인 이민자 여성에게 가장 흔하게 발생하는 암입니다. 그러나 한인 이민자 여성의 유방암 검진율은 다른 민족/인종 여성들에 비해 상대적으로 낮은 것으로 보고 되고 있습니다. 본 연구는 설문 조사와 녹음이 수반되는 개인 인터뷰를 통해, 한인 이민자 여성의 유방암 검진에 관하여 조사하고자 합니다.

설문 조사는 한인 이민자 여성들의 유방암 검진에 영향을 미치는 요인(예를 들어, 유방암과 유방암 검진에 관한 지식 그리고 문화적 영향)을 파악하기 위한 것입니다. 설문 조사는 인터뷰로 진행되며, 아이패드(IPad)를 이용해 온라인으로 작성하게 됩니다. 설문은 귀하가 원하는 시간과 장소에서 직접 만나 진행됩니다. 설문을 작성하는데 약 1 시간 정도 소요됩니다. 설문을 마치시면, 이에 대한 사례로 **20 불 상당의 타켓기프트 카드**를 드립니다.

개인 인터뷰는 유방암 및 유방암 검진에 대한 귀하의 의견 및 유방암 검진 경험에 관한 것입니다. 이 인터뷰는 설문조사에 참여하신 분 들 중, 개인 인터뷰에 관심이 있으시고 동의하신 분들에 한하여 약 1 시간에서 1.5 시간 정도 진행될 것입니다. 인터뷰는 귀하가 원하는 시간과 장소에서 직접 만나거나 또는 전화통화를 통해 진행됩니다. 인터뷰에 응해주신 것에 대한 사례로 **20 불 상당의 타켓 기프트 카드가 추가적으로 제공**됩니다.

귀하의 연구참여는 한인 이민자 여성들을 위한 유방암 검진에 관한 이해를 돕고, 향후 유방암 검진을 권장하는 프로그램 개발에 큰 보탬이 될 것입니다.

자격요건

1) 한국에서 태어나고 자라, 성인이 되어 미국으로 이민을 온 한인 여성
2) 현재 캘리포니아 로스엔젤레스 카운티에 거주하시는 분
3) 40-79 세 이상이신 분
4) 한국어가 유창하신 분
5) 유방암 진단을 받은적이 없으신 분

연락처

미네소타 대학 사회복지 대학원
이미화 (연구책임자)
612-462-1462, leex4807@umn.edu

*본 연구는 미국 암 협회의 지원으로 진행됩니다.

Appendix 3: Survey Consent Form (English)

Breast Cancer Screening Behaviors among Korean Immigrant Women: Survey

You are invited to participate in a study of breast cancer screening behaviors in Korean immigrant women. You were selected as a potential participant in this study because (1) you are a Korean immigrant woman who was born and grew up in Korea, and immigrated to the United States as an adult, (2) you are currently residing in in Los Angeles County, California, (3) your age is between 40 and 79 years old, (4) you are fluent in Korean language, and (5) you have never been diagnosed with breast cancer. Your participation in this study is completely voluntary. I would ask that you read the important information below and ask any questions that you may have before agreeing to be in the study.

Up to 247 women will be enrolled in this study.

This study is conducted by Mi Hwa Lee, a doctoral candidate, School of Social Work, University of Minnesota, Twin Cities. This study is funded by the American Cancer Society.

Background Information:
Breast cancer is the most frequently diagnosed cancer among Korean immigrant women in the United States (U.S.). However, Korean immigrant women are reported to have low breast cancer screening rates compared to other racial/ethnic women. The purpose of this study is to understand breast cancer screening behaviors in Korean immigrant women through surveys and audio recorded individual interviews. The surveys are conducted to identify factors associated with breast cancer screening uptake (for example, knowledge on breast cancer, screening, and cultural influence) in Korean immigrant women. The interviews are consisted of questions that will be focus on your views on breast cancer and screening as well as your experiences with screening participation. Your participation will help me obtain a more comprehensive view of Korean immigrant women's screening behaviors and develop more culturally tailored intervention strategies in order to promote their screening uptake.

Procedure:
If you agree to take part in this research study, I would ask to complete a survey. The survey will take approximately an hour. The survey will be conducted through face-to-face interviews using an online survey (REDCap) on an iPad or a paper-based survey based on your preference.

Risks and Benefits of Being in the Study:
There are minimal risks associated with the study it. In survey, there may be some questions that you may find uncomfortable. If this happen, you may choose not to answer those questions. This risk is a minimal risk that can be addressed by contacting Mi Hwa Lee at 612-462-1462. One possible study benefit to subjects is that you will become

aware of what breast cancer screening services are available in the community and in California and how you can gain access to those services.

Compensation:
As an appreciation for your time and efforts in this study, you will be given a $20 Target gift card after completing the survey.

Confidentiality:
The records of this study will be kept private. Information will be kept in study case report forms. Information gained from this study will be used for research and educational purposes only. If information from this study is published or presented at conferences, your name and other personal information will not be used.
The research data, paper surveys, and any information of participants in this study will be kept in locked filing cabinets which will be secured by the researcher. The research data, paper surveys, and any information of participants will be kept for 6 years for subsequent research and then they will be destroyed.

The online survey (REDCap) does not identify information such as your name, email address, or IP address. However, you may provide your contact information at the end of survey if you are interested in participating in an audio recorded individual interview (the second part of the study). In this case, your survey responses may no longer be anonymous to the principal investigator. Otherwise, your responses will remain anonymous if you do not provide your contact information. No one will be able to identify you or your answers.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships. You may also choose not to answer any questions and still remain in the study.

Contacts and Questions:
The researcher conducting this study is Mi Hwa Lee. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her via phone (612-462-1462) or email (leex4807@umn.edu).

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Are you interested in learning more about the optional individual interview component, which is the second part of the study? If you mark "yes", you will be given information about the individual interview after you complete a survey interview.
YES ( ) No ( )

Statement of Consent:
I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Printed Name:_____ Date: _____

Signature:_____ Date: _____

Signature of Investigator (Interviewer):_____ Date: _____

Appendix 4: Individual Interviw Consent Form (English)

Breast Cancer Screening Behaviors among Korean Immigrant Women: Individual Interview

You are invited to participate in the second part of the study of breast cancer screening behaviors in Korean immigrant women. You were selected as a potential participant because you provided your contact information at the end of survey (the first part of the study), which implies that you are interested in an individual interview. Your participation in this study is completely voluntary. I would ask that you read the important information below and ask any questions that you may have before agreeing to be in the study.

This study is conducted by Mi Hwa Lee, a doctoral candidate, School of Social Work, University of Minnesota, Twin Cities. This study is funded by the American Cancer Society.

Background Information:
Breast cancer is the most frequently diagnosed cancer among Korean immigrant women in the United States (U.S.). However, Korean immigrant women are reported to have low breast cancer screening rates than other racial/ethnic women. The purpose of this study is to understand breast cancer screening behaviors in Korean immigrant women through surveys and an audio recorded individual interview. You already completed the survey to identify factors associated with breast cancer screening uptake in Korean immigrant women.

The interviews are consisted of questions that will be focus on your views on breast cancer and screening as well as your experiences with screening participation. Your participation will help me obtain a more comprehensive view of Korean immigrant women's screening behaviors and develop more culturally tailored intervention strategies in order to promote their screening uptake.

Procedure:
This is the second part of the study, an audio recorded individual interview. This interview will last approximately between 1 hour and 1.5 hours. With your permission, the interview will be audio taped and notes will be taken during the interview. The recording is to accurately record the information you provide, and will be used for transcription purposes only. If you agree to being audiotaped but feel uncomfortable at any time during the interview, the recorder will be turned off at your request. The interview will is conducted at a time and location of your choice, either in person or by phone.

I expect to conduct only one interview; however, follow-ups may be needed for additional clarification. If further clarification is needed, you will be contacted by email or phone for follow-ups.

Risks and Benefits of Being in the Study:
The study has minimal risks associated with it. Some of interview questions may make you uncomfortable or upset. You are free to decline to answer any questions you don't wish to, or to stop the interview at any time. However, this risk is minimal and can be addressed by contacting Mi Hwa Lee at 612-462-1462. One possible study benefit to subjects is that you will become aware of what breast cancer screening services are available in the community and in California and how you can gain access to those services.

Compensation:
As an appreciation for your time and efforts in this study, you will be given a $20 Target gift card after completing the interview.

Confidentiality:
Any information obtained through this study will remain confidential. The interview data will be stored securely (e.g., locked cabinets and computer) and only researcher will have access to the data. If the results of the research are published or discussed at conferences, no information will be included that would reveal your identity. The interview data and any information of participants in this study will be kept for 6 years for subsequent research and then they will be destroyed.

Voluntary Nature of the Study:
Participation in this study is voluntary. Your decision whether or not to participate will not affect your current or future relations with the University of Minnesota. If you decide to participate, you are free to not answer any question or withdraw at any time without affecting those relationships. You may also choose not to answer any questions and still remain in the study.

Contacts and Questions:
The researcher conducting this study is Mi Hwa Lee. You may ask any questions you have now. If you have questions later, **you are encouraged** to contact her via phone (612-462-1462) or email (leex4807@umn.edu).

If you have any questions or concerns regarding this study and would like to talk to someone other than the researcher, **you are encouraged** to contact the Research Subjects' Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; (612) 625-1650.

You will be given a copy of this information to keep for your records.

Statement of Consent:
I have read the above information. I have asked questions and have received answers. I consent to participate in the study.

Printed Name:_____ Date: _____

Signature:_____ Date: _____

Signature of Investigator (Interviewer):_____ Date: _____

Appendix 5: Survey Consent Form (Korean)

한인 이민자 여성의 유방암 검진: 설문조사

귀하는 한인 이민자 여성의 유방암 검진 행동에 관한 연구에 초대되었습니다. 귀하가 본 연구에 초대된 이유는 (1) 귀하는 한국에서 태어나고 자라 성인이 된 후 미국으로 이민을 오셨고, (2) 현재 캘리포니아주 로스엔젤레스 카운티에 거주하고 계시며, (3) 귀하의 나이는 40 세 -79 세이고, (4) 한국어가 유창하시며, (5) 유방암 진단을 받은적이 없기 때문입니다. 본 연구 참여는 귀하의 자발적 동의하에 이루어질 것입니다. 연구 참여 여부를 결정하시기 전에 다음의 정보를 읽고, 불분명한 사항이 있을 경우 연구 진행자에게 질문해주시기 바랍니다.

최대 247 명까지 여성이 본 연구에 등록될 것입니다.

본 연구는 미국 암협회의 지원으로, 미네소타대학 사회복지대학원에 재학 중인 이미화에 의해 진행됩니다.

배경정보:
유방암은 미국에 거주하는 한인 이민자 여성에게 가장 흔하게 발생하는 암입니다. 그러나 한인 이민자 여성의 유방암 검진률은 다른 민족/인종 여성들에 비해 상대적으로 낮은 것으로 보고 되고 있습니다. 본 연구는 설문조사와 녹음이 수반되는 개인 인터뷰를 통해, 한인 이민자 여성의 유방암 검진에 관하여 조사하고자 합니다. 설문조사는 한인 이민자 여성들의 유방암 검진에 영향을 미치는 요인(예를 들어, 유방암과 유방암 검진에 관한 지식 그리고 문화적 영향) 을 파악하기 위한 것입니다. 인터뷰는 유방암 및 유방암 검진에 대한 귀하의 의견 및 유방암 검진 경험에 대해 알아보고자 하는 것입니다. 귀하의 연구참여는 한인 이민자 여성들을 위한 유방암 검진에 관한 이해를 돕고, 향후 유방암 검진을 권장하는 프로그램 개발에 큰 보탬이 될 것입니다.

과정:
본 연구에 참여하기로 동의하셨다면, 본 연구의 첫 번째 단계인 설문 작성을 부탁드립니다. 설문을 작성하는데 약 1 시간 정도 소요됩니다. 설문 작성은 인터뷰로 진행되며, 설문은 귀하의 선택에 따라 아이패드를 이용해 온라인 (REDCap, 레드캡이라는 프로그램) 또는 종이 설문지로 작성하게 됩니다.

연구 참여에 따른 위험 및 혜택:
본 연구 참여시 발생할 위험은 매우 낮습니다. 설문지를 작성하시는 동안 설문 내용에 대해 불편함을 느끼실 수 있습니다. 불편함을 느끼는 설문 내용에는 응답하지 않으셔도 됩니다. 그러나 불편함이 발생할 가능성은 매우 낮으며, 이에 대해 이야기를 나누고 싶으시다면 이미화

612-462-1462 로 연락주시기 바랍니다. 귀하의 연구참여는 한인 이민자 여성들의 유방암 예방 프로그램에 관한 지식을 넓히는데 사회적으로 많은 도움이 될 것입니다.

보상:
연구 참여에 감사의 표시로, 설문 작성 후 귀하는 20 불 상당의 타켓 기프트 카드를 받게 됩니다.

비밀보장:
본 연구를 통해 수집되는 모든 정보는 비밀로 보장될 것입니다. 정보는 연구 사례 보고서 형태로 유지될 것입니다. 만약 연구 결과를 출간하거나 학회에서 논의하게 될 경우, 귀하의 개인 정보는 포함되지 않을 것입니다. 연구 관련 정보 및 설문지는 잠금 장치가 있는 캐비넷에 안전하게 보관될 것이며, 연구 책임자만이 접근 가능할 것입니다. 또한 연구 관련 정보 및 설문지는 후속 연구를 위해 향후 6 년간 보관될 예정이며, 그 후 파기될 것입니다.

온라인 서베이 (REDCap, 레드캡)은 귀하의 성함, 이메일 주소, 또는 인터넷에서 접속한 컴퓨터 식별 번호 (IP address)를 수집하지 않습니다. 단, 귀하께서 본 연구의 두 번째 단계인 개인 인터뷰에 관심이 있으시면 설문지 마지막에 귀하의 성함, 전화번호, 그리고 이메일 주소를 남기실 수 있습니다. 이 경우, 귀하가 설문지에 응답하신 대답들은 연구 책임자에게 더 이상 익명이 아니게 됩니다. 설문 작성 후 인터뷰에 관심이 없어 연락처를 남기지 않는 경우, 모든 정보는 익명으로 처리되어 보관됩니다. 누구도 귀하의 하신 응답을 알아볼 수 없습니다.

자발적 연구 참여:
본 연구 참여는 귀하의 자발적 동의하에 이루어질 것입니다. 귀하의 연구 참여 여부에 대한 결정은 현재 혹은 추후에 발생할 귀하와 미네소타 대학과의 관계에 영향을 미치지 않을 것입니다. 연구 참여에 동의하실 경우, 어떤 질문에든 답하지 않을 자유가 있으시며 언제든 연구 참여를 철회하실 수 있습니다. 특정 질문에 응답하지 않기로 선택하신 경우에도 연구 참여를 지속할 수 있습니다.

연락처 및 질문사항:
본 연구의 책임자는 이미화입니다. 이 글을 읽고 계신 지금, 연구와 관련해 질문이 있으시다면 주저하지 마시고 말씀해주시기 바랍니다. 추후 질문이 있으실 경우, 612-462-1462 또는 leex4807@umn.edu 로 연락주시기 바랍니다.

연구에 대한 질문이나 기타 염려 사항을 연구 책임자 이외에 사람과 논의하고 싶은 경우, 연구 참여자 보호센터(Research Subject's Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; 612-625-1650)로 연락하시기 바랍니다.

귀하께 본 연구 동의서 사본을 제공할 것입니다.

귀하께서는 본 연구의 두 번째 단계인 개인 인터뷰에 대해 알고 싶습니까? "예"라고 응답하실 경우, 설문 인터뷰가 끝나면 개인 인터뷰에 대한 설명을 듣게 되실 것입니다.
예 ( ) 아니오 ( )

연구 동의 진술:
본인은 위의 정보를 숙지하였습니다. 본 연구와 관련된 질문을 하였고, 그에 대한 설명을 들었습니다. 본인은 이 연구에 참여할 것입니다.

성명:_____ 날짜: _____

서명:_____ 날짜: _____

연구 진행자 서명:_____ 날짜: _____

Appendix 6: Individual Interview Consent Form (Korean)

한인 이민자 여성의 유방암 검진: 인터뷰

귀하는 한인 이민자 여성의 유방암 검진에 관한 연구의 두 번째 단계에 초대되었습니다. 귀하는 본 연구의 첫 번재 단계인 설문조사에서 연락처를 남김으로써 인터뷰에 관심이 있음을 표명해주셨습니다. 본 연구에 대한 참여는 귀하의 자발적인 동의하에 이루어질 것입니다. 연구 참여 여부를 결정하시기 전에 다음의 정보를 읽고, 불분명한 사항이 있을 경우 연구 진행자에게 질문해주시기 바랍니다.

본 연구는 미국 암협회의 지원으로, 미네소타대학 사회복지대학원에 재학 중인 이미화에 의해 진행됩니다.

배경정보:
유방암은 미국에 거주하는 한인 이민자 여성에게 가장 흔하게 발생하는 암입니다. 그러나 한인 이민자 여성의 유방암 검진률은 다른 민족/인종 여성들에 비해 상대적으로 낮은 것으로 보고 되고 있습니다. 본 연구는 설문조사와 녹음이 수반되는 개인 인터뷰를 통해, 한인 이민자 여성의 유방암 검진에 관하여 조사하고자 합니다. 설문조사는 한인 이민자 여성들의 유방암 검진에 영향을 미치는 요인(예를 들어, 유방암과 유방암 검진에 관한 지식 그리고 문화적 영향) 을 파악하기 위한 것입니다. 인터뷰는 유방암 및 유방암 검진에 대한 귀하의 의견 및 유방암 검진 경험에 관한 것입니다. 귀하의 연구참여는 한인 교포 여성들을 위한 유방암 검진에 관한 이해를 돕고, 향후 유방암 검진을 권장하는 프로그램 개발에 큰 보탬이 될 것입니다.

과정:
두 번째 단계인 본 연구는 녹음이 수반되는 개인 인터뷰로 진행됩니다. 인터뷰는 약 1 시간에서 1.5 시간 정도 소요됩니다. 귀하의 동의 아래, 인터뷰는 녹음이 되며인터뷰 과정에서 메모를 할 것입니다. 녹음은 귀하께서 제공하는 정보를 정확하게 기록하기 위함이고, 녹취 (녹음 내용을 글로 옮김) 목적으로만 사용이 될 것입니다. 녹음하는데 동의하셨지만, 인터뷰 도중 녹음이 불편하다고 느끼신다면 귀하의 요청에 따라 녹음을 중지시킬 것입니다. 인터뷰는 귀하가 원하는 시간과 장소에서 직접 만나거나 또는 전화 통화를 통해 진행됩니다.

연구 참여에 따른 위험 및 혜택:
본 연구 참여 시 발생할 위험은 매우 낮습니다. 일부 인터뷰 질문에 대해 불편함을 느끼실 수 있습니다. 불편함을 느끼는 질문에 대해서는 응답하지 않으셔도 됩니다. 그러나 불편함이 발생할 가능성은 매우 낮으며, 이에 대해 이야기를 나누고 싶으시다면 이미화 612-462-1462 로 연락주시기 바랍니다. 귀하의 연구참여는 한인 교포 여성들의 유방암 예방 프로그램에 관한 지식을 넓히는데 사회적으로 많은 도움이 될 것입니다.

보상:
인터뷰에 응해주신 것에 대한 감사의 표시로, 귀하는 인터뷰 종료 후 20 불 상당의 타켓 기프트 카드를 받게 됩니다.

비밀보장:
본 연구를 통해 수집되는 모든 정보는 비밀로 보장될 것입니다. 인터뷰 자료는 잠금 장치가 있는 컴퓨터에 안전하게 보관될 것이며, 연구 책임자만이 이 정보에 대한 접근권을 가질 것입니다. 만약 연구 결과를 출간하거나 학회에서 논의하게 될 경우, 귀하의 개인 정보는 포함되지 않을 것입니다. 연구 관련 정보는 후속 연구를 위해 향후 6 년간 보관될 예정이며, 그 후 파기될 것입니다.

자발적 연구 참여:
본 연구 참여는 귀하의 자발적 동의하에 이루어질 것입니다. 귀하의 연구 참여 여부에 대한 결정은 현재 혹은 추후에 발생할 귀하와 미네소타 대학과의 관계에 영향을 미치지 않을 것입니다. 연구 참여에 동의하실 경우, 어떤 질문에든 답하지 않을 자유가 있으시며 언제든 연구 참여를 철회하실 수 있습니다. 특정 질문에 응답하지 않기로 선택하신 경우에도 연구 참여를 지속할 수 있습니다.

연락처 및 질문사항:
본 연구의 책임자는 이미화입니다. 이 글을 읽고 계신 지금, 연구와 관련해 질문이 있으시다면 주저하지 마시고 말씀해주시기 바랍니다. 추후 질문이 있으실 경우, 612-462-1462 또는 leex4807@umn.edu 로 연락주시기 바랍니다.

연구에 대한 질문이나 기타 염려 사항을 연구 책임자 이외에 사람과 논의하고 싶은 경우, 연구 참여자 보호센터(Research Subject's Advocate Line, D528 Mayo, 420 Delaware St. Southeast, Minneapolis, Minnesota 55455; 612-625-1650)로 연락하시기 바랍니다.

귀하께 본 연구 동의서 사본을 제공할 것입니다.

연구 동의 진술:
본인은 위의 정보를 숙지하였습니다. 본 연구와 관련된 질문을 하였고, 그에 대한 설명을 들었습니다. 본인은 이 연구에 참여할 것입니다.

성명:_____ 날짜: _____

서명:_____ 날짜: _____

연구 진행자 서명:_____ 날짜: _____

Appendix 7: Survey (English)

IRB Code Number: 1604P86753

University of Minnesota, Twin Cities

School of Social Work

Breast Cancer Screening Behavior
Among Korean Immigrant Women

QUESTIONNAIRE I.D. #:_____

INTERVIEW DATE:_____

INTERVIEW SITE:_____

2016

PART I: Cultural Aspect of Cancer and Cancer Screening

*This section will help us understand how culture influences your views on cancer and cancer screening. Please circle **ONLY ONE** number that indicates your agreement on each statement.*

	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
A1	If I am meant to get cancer, I will get it.	1	2	3	4
A2	If we get cancer, the best way to deal with it is to accept it, just like the old saying "listen to heaven and follow fate".	1	2	3	4
A3	Health or illness is a matter of fate. Some people are always healthy and other get sick very often.	1	2	3	4
A4	I cannot control my destiny.	1	2	3	4
A5	Avoiding cancer is a matter of personal luck.	1	2	3	4
A6	No matter what I do, if I am going to get cancer, I will get it.	1	2	3	4
A7	It is hard to prevent cancer.	1	2	3	4
A8	Getting cancer is like being sentenced to death.	1	2	3	4
A9	It is best not to think about cancer. If we think about it too much, we probably will get cancer.	1	2	3	4
A10	If I feel well, it is not necessary to have a health check-up.	1	2	3	4
A11	If I follow a healthy life style such as balanced diet and regular exercise, I do not feel it is necessary to have a regular check-up.	1	2	3	4
A12	I see a doctor or have my health check-up only when I have a health problem.	1	2	3	4
A13	If I feel healthy, I do not need to see the doctor.	1	2	3	4

PART II: Health Beliefs of Breast Cancer and Breast Cancer Screening

*This section will help us understand how your health beliefs influence your views on breast cancer and breast cancer screening. Please circle **ONLY ONE** number that indicates your agreement on each statement.*

Statement		Strongly Disagree	Disagree	Agree	Strongly Agree
B1	It is likely that I will get breast cancer.	1	2	3	4
B2	My chances of getting breast cancer in the next few years are great.	1	2	3	4
B3	I feel I will get breast cancer sometimes during my life.	1	2	3	4
A mammogram is an x-ray examination of the breasts. Mammography screens for breast abnormailities. Each breast is pressed between two plates during the procedure.					
B4	If I get a mammogram and nothing is found, I do not worry as much about breast cancer.	1	2	3	4
B5	Having a mammogram will help me find breast lumps early.	1	2	3	4
B6	If I find a lump through a mammogram, my treatment for breast cancer may not be as bad.	1	2	3	4
B7	Having a mammogram is the best way for me to find a very small lump.	1	2	3	4
B8	Having a mammogram will decrease my chances of dying from breast cancer.	1	2	3	4

PART III: Social Support, Breast Cancer, and Breast Cancer Screening

*This section will help us understand how your social support influences your views on breast cancer and breast cancer screening. Please circle **ONLY ONE** number that indicates your agreement on each statement.*

Statement		Strongly Disagree	Disagree	Agree	Strongly Agree
C1	My adult children or family friends have recommended for me to get checked for breast cancer.	1	2	3	4
C2	My adult children or family friends are willing to listen to me when I need to talk about specific health problems or concerns such as breast symptoms or mammography.	1	2	3	4
C3	My adult children or family friends help me make and keep medical appointments such as for mammography.	1	2	3	4
C4	My adult children or family friends give me advice or information about health problems such as breast cancer.	1	2	3	4

PART IV: Knowledge of Breast Cancer and Breast Cancer Screening

This section will help us understand your breast cancer and breast cancer screening knowledge. For each statement, please insert ***ONE CHECK*** **MARK** *for either "True", "False", or "Don't know".*

	Statement	True	False	Do not know
D1	Women with large breasts are more likely to get breast cancer than women with small breasts.			
D2	Breast lumps are the only real symptoms of breast cancer.			
D3	Bruising, bumping, or injuring the breast can cause breast cancer.			
D4	The more extensive their breast surgery the better are a women chances for cure.			
D5	The only treatment for breast cancer is mastectomy, or breast removal.			
D6	Women who have breast cancer are more likely to develop it again.			
D7	Women who have their first child before the age of 30 are less likely to get cancer than women who have their first child after age 30.			
D8	If breast cancer has not recurred (returned) for more than 5 years, it will not come back.			
D9	Women who are over 50 years of age are more likely to get breast cancer than younger women.			
D10	Women with high breast density are four to five times more likely to get breast cancer than women with low breast density.			
A mammogram is an x-ray examination of the breasts. Mammography screens for breast abnormailities. Each breast is pressed between two plates during the procedure.				
D11	Mammograms will always accurately diagnose breast cancer.			
D12	Mammography can detect lumps that cannot be felt.			
D13	If a woman gets regular mammography, she does not need to do Breast Self-Exam or have physical examinations.			
D14	According to the American Cancer Society, mammography is recommended yearly for women between 45 and 54 years old.			
D15	According to the American Cancer Society, bi-annual screening or annual screening (patient's choice) is recommended for women aged 55 years and older.			

Statement	True	False	Do not know
D16 False-negative results, in which mammograms appear normal but when breast cancer is actually present, increase with the level of breast density.			

Please respond to the following two questions by circling the number that corresponds to your response.

D17. Most breast lumps are found by _____.

Women themselves..……..…..…….1
Physicians.……..…...2
Mammogram …….…….....3
Do not know.…….…….4

D18. How much difference does regular breast cancer screening make with regard to the chance
of curing breast cancer?

A great deal of difference …….…….1
Some difference …….……2
Little or no difference ……..……..3
Do not know…….……...4

PART V: Breast Cancer Screening Experience

I would like to learn about your breast cancer screening experience using mammogram. Please circle the ***NUMBER*** *that indicates your response on each question, and write in a response when indicated.*

E1. Have you ever heard about mammogram before participating in this study?

Yes ……..……1
No ……..…….…2

E2. Did you know how mammogram is done before participating in this study?

Yes ……...1
No ……2

E3. Have you ever had mammogram?

Yes ……..…….1 [GO TO E3-1]

No …….……...2 [GO TO E4]

If, "yes"

E3-1. At what age did you get your first mammogram? _____ years old

E3-2. What made you decide to get your first mammogram?

[_____]

E3-3. Where did you have your first mammogram?

Korea 1
U.S. 2
Other 3
[Please specify: _____]

E3-4. How often have you had a mammogram since your first one?

Have not had another since the first one ……..…1
Every year ……....….2
Once every two years ……..……..……..….3
Once every three years …….…….....4
Other ……...…….……..5
[Please specify: _____]

E3-5. How many times have you had a mammogram in your lifetime?

_____times

E3-6. In what year did you have your last mammogram? _____ year

E3-7. Have you ever had a mammogram in Korea, after you immigrated in the U.S.?

Yes…….….1 [GO TO E3-7-1]
No 2

E3-7-1. What motivated you to have the mammogram in Korea?

[_____]

E3-8. Please indicate your overall experience with mammogram.

Very negative..... 1
Negative..... 2
Positive 3
Very positive..... 4

E3-9. Have you ever gone through any follow-up tests (for example, diagnostic mammogram, ultrasound, and biopsy) after having mammogram?

Yes ……..……1

[Please specify: _____]

No ……...…2

E4. Please indicate your future intention to have a mammogram. Please go to E4-1 if you have had a mammogram. Otherwise, please go to E4-2 if you have not had a mammogram.

E4-1: I have received a mammogram and I…	do not have a plan to have one anymore……..……1 have a plan to have one within one within one year.....2 have a plan to have one within one within two years.....3 have a plan to have one within one within three years…4
E4-2: I have never had a mammogram and I…	do not have a plan to have one…….....1 have a plan to have one within one year.....2 have a plan to have one within two years.....3 have a plan to have one within three years……..…..4

E5. Have you ever heard about a mammogram experience from family members, friends, or neighborhoods?

Yes ……1 [GO TO E5-1]

No ……2 [GO TO E6]

E5-1. Overall, how did they describe their mammogram experience?

Very negative.....1

Negative.....2

Positive.....3

Very positive.....4

E5-2. Did their mammogram experience story help you to make a decision to have a mammogram?

Yes ……..1

No ……...2

E6. Are you aware of any free or low cost mammogram services (for example, Every Women Counts)?

Yes ……..…1 [GO TO E6-1]

No ……..…..2

E6-1. Have you ever had a mammogram using a free or low cost mammogram service?

Yes ……1
No ……..……....2

PART VI: Barriers to Getting a Mammogram

*The questions below are about barriers to having a mammogram. Please circle **ONLY ONE** number that indicates your agreement on each statement, and write in a response when indicated.*

	Statement	Strongly Disagree	Disagree	Agree	Strongly Agree
F1	I am afraid to have a mammogram because I might find out something is wrong.	1	2	3	4
F2	I am afraid to get a mammogram because I do not understand what will be done.	1	2	3	4
F3	I do not know how to go about getting a mammogram.	1	2	3	4
F4	Having a mammogram is too embarrassing.	1	2	3	4
F5	Having a mammogram takes too much time.	1	2	3	4
F6	Having a mammogram is too painful.	1	2	3	4
F7	People doing mammograms are rude to women.	1	2	3	4
F8	Having a mammogram exposes me to unnecessary radiation.	1	2	3	4
F9	I cannot remember to schedule a mammogram.	1	2	3	4
F10	I have other problems more important than getting a mammogram.	1	2	3	4
F11	I am too old to need a routine mammogram.	1	2	3	4
F12	I am afraid that I may not communicate well with a physician in English.	1	2	3	4
F13	I have not been able to get a mammogram because of my financial situation or my insurance status.	1	2	3	4
F14	It has been difficult to get mammograms because I do not have reliable transportation to a clinic.	1	2	3	4

F15. Please describe any other situations that prevent you from having a mammogram.

PART VII: Self-Efficacy and Mammography

*I would like to know your confidence in breast cancer screening. Please circle **ONLY ONE** number to rate your level of confidence on each statement.*

	Statement	Unconfident	Mildly unconfident	Mildly confident	Confident
G1	I can arrange transportation to get a mammogram.	1	2	3	4
G2	I can arrange other things in my life to have a mammogram.	1	2	3	4
G3	I can talk to people at the mammogram center about my concerns.	1	2	3	4
G4	I can get a mammogram even if I am worried.	1	2	3	4
G5	I can get a mammogram even if I do not know what to expect.	1	2	3	4
G6	I can find a way to pay for a mammogram.	1	2	3	4
G7	I can make an appointment for a mammogram.	1	2	3	4
G8	I know for sure I can get a mammogram if I really want to.	1	2	3	4
G9	I know how to go about getting a mammogram.	1	2	3	4
G10	I can find a place to have a mammogram.	1	2	3	4

PART VIII: Cancer History

*The questions below are about you and your family members' cancer history. Please circle the **NUMBER** that explains your situation appropriately on each question and write in a response when indicated.*

H1. Have you ever been diagnosed with any types of cancer?

Yes ……....1 [What type of cancer? _____]
No……..…2

H2. Have you ever discovered a breast symptom on your own?

Yes ……..1 [GO TO H2-1]
No……..…..2 [GO TO H3]

H2-1. What were the symptoms? (Circle all that apply)

Breast or nipple pain ……...1
Redness, scaliness, or thickening of the nipple or breast skin ……2
Skin irritation or dimpling……3
Nipple discharge ……..4
Nipple retraction ……..5
Swelling of all or part of a breast ……....6
Other ……..……..……....7
[Please specify: _____]

H2-2. Did you go to a health care professional after you discovered a breast symptom on your own?

Yes ……..…1 [GO TO H2-2-1]
No ……..…..2 [GO TO H3]

H2-2-1. What kind of health professional?

Doctor ……...1
Nurse …….....2
Other …….....3
[Please specify: _____]

H3. Has one of your family members (parent, grandparent, sibling, or close relative) ever been diagnosed with cancer?

Yes ……1
[Who was diagnosed and what type of cancer? _____]
No ……..2
I don't know/Not sure ……..….....…3

PART IX: Access to Healthcare

*The questions below are about your healthcare access. Please circle the **NUMBER** that explains your situation appropriately, and write in a response when indicated.*

I1. Do you have health insurance?

Yes ……1 [GO TO I1-1]
No ……..…2 [GO TO I1-6]

If, "yes" I1-1. What type of health insurance is it? (Circle all that apply)

Medicare ……...…….……...….1
Medi-Cal ……...…….……....2
Insurance provided by my employer……3
Personal health insurance ……4
Others ……...……...5
[Please specify: _____]

I1-2. How long have you been insured? _____ years

I1-3. Do you know what type of health care services are covered by your health insurance?

Yes ……1
No ……2

I1-4. Is it a burden to pay your health insurance premium?

Yes ……1
No ……2

I1-5. Is it a burden to pay the co-payment for a health care visit?

Yes ……1
No ……2

I1-6. What do you do to obtain health care when health care a need arises?

I2. Do you get a regular check-up?

Yes…… 1 [GO TO I2-1]
No……2 [GO TO I3]

I2-1. How often do you get a regular check-up?

Every six months..... 1
Every year..... 2
Every other year..... 3
Other 4
[Please specify: _____]

I3. How many times did you visit a health care provider in the past year?

Never..... 1
1 time 2
2 times..... 3
3 times..... 4
4 times..... 5
5 times..... 6
Other 7
[How many times? _____]

I4. Do you have your own primary care provider (for example, doctor or nurse practitioner who
you see for your ongoing care)?

Yes ……1 [GO TO I4-1]
No ……..2 [GO TO I5]

If, "yes" I4-1. What is your primary care provider's ethnicity?

Korean ……...1 [GO TO 14-1-2]
Other…….....2
[Please specify: _____] [GO TO 14-1-1]

I4-1-1. How do you communicate with your primary care provider?

I communicate with her/him ...……....1
I have an interpreter's help …….2
I have a family member's help ……..3
I have a friend's help……...4
Other ……...5
[Please specify: _____]

I4-1-2. What is your primary care provider's gender?

Female..... 1
Male 2

I4-1-3. Does your primary care provider recommend getting a mammogram as
part of breast cancer screening?

Yes ……..1
No……2
Do not know……3

I4-1-4. Do you feel confident asking your primary care provider about mammography?

Yes 1
No.....2

I5. Who do you talk to when a health care need arises?

PART X: Accessing Health Information

*The questions below are about your health information seeking behaviors. Please circle the **NUMBER or NUMBERS** that correspond to your response to each of the following questions.*

J1. Where do you **USUALLY** obtain health-related information? (Select up to 3 choices)

Friends/family members……..1
Health care professionals ……..2
Korean language brochures and pamphlets …….3
Korean language newspapers and magazines ……...4
Korean language radio and TV ……...5
Korean language Internet sites …….6
English language newspapers and magazines ……..7
English language brochures and pamphlets ……8
English language radio and TV ……...9
English language Internet sites ……...10
Other ……...11
[Please specify: _____]

J2. How much do you trust the health-related information that you obtain?

I do not trust it at all.....1
Little trust.....2
Quite a bit of trust ……...3
A lot of trust.....4

J3. How difficult is it for you to get advice or information about health or medical topics if you needed it?

I do not look for health information ……..1
Very difficult ……2
Somewhat difficult…….3
Somewhat easy ……4
Very easy …..……5

J4. How difficult it is for you to understand information that doctors, nurses, or other health professionals tell you?

I do not understand it at all……..1
Very difficult……...2
Somewhat difficult……..3
Somewhat easy……4
Very easy……5

J5. You can find written information about health on the Internet, in newspaper and magazines, and in brochures in the doctor's office and clinic. In general, how difficult it is for you to understand written health information?

I do not pay attention to written health information.....1
Very difficult ……2
Somewhat difficult ……3
Somewhat easy ……..4
Very easy ……...5

PART XI: Sociodemographic Background

*Finally, I would like to ask you questions about your sociodemographic background. Please circle the **NUMBER** that explains your situation appropriately or write in a response when indicated.*

K1. What is your birth year and month? _____year _____month

K2. How long have you lived in the U.S.? _____years

K2-1. What was your age when you immigrated in the U.S.? _____years old

K3. What is your marital status?

Single (never married) 1
Divorced..... 2
Widowed..... 3
Married..... 4
Partnered 5

K4. With whom do you live?

Alone …….……...…1
With spouse…….…..….2
With spouse and children……...3
With children (no spouse)...……...…...4
With relatives ……5
With other people ……..6
[Please specify: _____]

K5. Please indicate the number of family members who live with you. _____

K6. Please indicate the number of family members who you take care of. _____

K7. On average, how many hours a day do you spend on household chores? _____hours

K8. On average, how many hours a day do you take care of your family? _____hours

K9. How would you rate your overall ability to speak English?

I cannot speak English 1
Poor..... 2
Fair 3
Good 4
Very good 5
Excellent 6

K10. How would you rate your overall ability to understand English?

I cannot understand English..... 1
Poor..... 2
Fair..... 3
Good..... 4
Very good..... 5
Excellent 6

K11. How would you rate your ability to read English?

I cannot read English 1
Poor..... 2
Fair..... 3
Good..... 4
Very good 5
Excellent 6

K12. What is the highest education level that you completed?

Completed elementary school ……..……..…...1
Completed middle school ……..2
Completed high school or equivalent …….……..…..…3
Completed college or university.……...…..4
Completed graduate school..……..…..…..…5

K13. Where did you complete your highest level of education?

Korea ……..……..…….……..……...1
U.S. ……..…….…….....2
Other ……..…….....3
[Please specify: _____]

K14. What is your employment status?

Full-time, employed by others ……..…...….1
Full-time, self-employed ……..…...…2
Part-time, employed by others ……..……..……...…3
Part-time, self-employed …….....4
Unemployed ……..……..5
Retired ……..…....6
Disabled...…….……...…..7
Other …….……...…….8
[Please specify: _____]

K15. What is your ANNUAL household income (include your spouse's income)?

Less than $25,000……..1
$25,000 to less than $49,999.....2
$50,000 to less than $74,999.....3
$75,000 to less than $94,999 …….....4
$95,000 to less than $104,999 ……5
$105,000 to less than $124,999 …….....6
$125,000 or more ..... ……..…7

K16. What is your current health status?

Poor.....1
Fair.....2
Good.....3
Very good.....4
Excellent 5

K17. Do you have any chronic conditions?

Yes ……1 [GO TO K17-1]
No ……..….2 [GO TO 18]

K17-1. What types of chronic conditions do you have? (Circle all that apply)

Heart disease …….……...……1
Stroke …….…..…..2
Hypertension …….……....3
Diabetes …….…...4
Asthma ……..…..…...5
Arthritis ……6
Osteoporosis ……..……..7
Other ……..….8
[Please specify: _____]

K18. Where did you get information about this study?

Religious organization (for example, churches or temples) ……..….1
Social service center …….…….2
Senior center ……....…..3
Family member ……..….4
Friend ……..……5
Other ……..…….6
[Please specify: _____]

THIS IS THE END OF THE QUESTIONNAIRE.

Are you interested in participating in the second part of the study? It consists of an audio recorded individual interview that will last for approximately between 1 hour and 1.5

hours. The individual interview is about your views on breast cancer and breast cancer screening, as well as your experience with breast cancer screening.

In appreciation for the time you are dedicating to the interview, you will be given another $20 gift card after you complete the interview. The interview will be conducted at a time and location of your choice, either in person or by phone. Please provide your contact information below if you are interested in. The Principal Investigator will contact you.

Name: Phone number: Email:

THANK YOU SO MUCH!

Appendix 8: Survey (Korean)

IRB Code Number: 1604P86753

미네소타 대학교, 트윈시티
사회복지 대학원

한인 이민자 여성의 유방암 검진 행위 (Breast Cancer Screening Behavior)

설문지 고유번호 #: _____

인터뷰 날짜: _____

인터뷰 장소:_____

2016

Part I: 암 및 암 검진에 관한 문화적 측면

문화가 암과 암검진에 관한 귀하의 생각에 어떻게 영향을 미치는지 알아보고자 합니다. 각 진술에 대해 어느 정도 동의 하시는지 **하나의 숫자에만** 동그라미로 표시해주세요.

	문항	매우 동의하지 않음	동의하지 않음	동의함	매우 동의함
A1	내가 암에 걸릴 운명이라면, 나는 암에 걸릴 것이다.	1	2	3	4
A2	암에 걸렸을 때 이에 대처하는 가장 좋은 방법은 “하늘의 뜻이라 생각하고 운명을 따르라” 와 같은 옛말처럼 그 상황을 받아들이는 것이다.	1	2	3	4
A3	건강하거나 아프거나 하는 것은 운명(팔자)이다. 어떤 사람들은 항상 건강하고 어떤 사람들은 매우 자주 아프다.	1	2	3	4
A4	나는 내 운명을 통제할 수 없다.	1	2	3	4
A5	암에 걸리지 않는 것은 개인의 운이다.	1	2	3	4
A6	내가 무엇을 하던지 암에 걸릴 사람이라면, 나는 암에 걸릴 것이다.	1	2	3	4
A7	암은 예방하기는 어렵다.	1	2	3	4
A8	암에 걸리는 것은 사형선고를 받는 것과 마찬가지이다.	1	2	3	4
A9	암에 대해서 생각하지 않는 것이 가장 좋다. 암에 대해 너무 많이 생각하면, 암에 걸릴지도 모른다.	1	2	3	4
A10	건강하다고 느끼면 건강 검진을 받을 필요가 없다.	1	2	3	4
A11	건강한 생활 습관(균형 잡힌 식사 및 규칙적인 운동)을 따르면, 정기적으로 건강 검진을 받을 필요가 없다.	1	2	3	4
A12	나는 건강상의 문제가 있을 때만 의사를 만나거나 건강 검진을 받는다.	1	2	3	4

문항	매우 동의하지 않음	동의하지 않음	동의함	매우 동의함
A13 건강하고 느끼면 의사를 만날 필요가 없다.	1	2	3	4

PART II: 유방암 및 유방암 검진에 대한 건강 신념

유방암과 유방암 검진에 관한 귀하의 의견이 건강에 대한 신념의 영향을 받는지 알아보고자 합니다. 각 진술에 어느 정도 동의하시는지 **하나의 숫자에만** 동그라미로 표시해주세요.

문항	매우 동의하지 않음	동의하지 않음	동의함	매우 동의함
B1 나는 유방암에 걸릴 가능성이 크다.	1	2	3	4
B2 향후 몇 년 이내에 내가 유방암에 걸릴 가능성은 매우 크다.	1	2	3	4
B3 나는 언젠가 유방암에 걸릴 것 같다.	1	2	3	4
B4 메모그램에서 아무것도 발견되지 않는다면, 유방암에 관해서 크게 걱정하지 않을 것이다.	1	2	3	4
B5 메모그램은 유방 내 멍울을 초기에 발견하는데 도움이 될 것이다.	1	2	3	4
B6 메모그램으로 유방 내 멍울을 발견한다면 암 치료 과정은 그렇게 어렵지 않을 것이다.	1	2	3	4
B7 메모그램은 매우 작은 멍울을 찾는데 가장 좋은 방법이다.	1	2	3	4
B8 메모그램을 받으면 유방암으로 인해 사망할 가능성이 줄어들 것이다.	1	2	3	4

PART III: 사회적 지지, 유방암 및 유방암 검진

암과 암 검진에 관한 귀하의 의견이 주변 사람들의 지원에 영향을 받는지 알아보고자 합니다. 각 진술에 대해 귀하의 동의 정도 여부를 **하나의 숫자에만** 동그라미로 표시해주세요.

문항	매우 동의하지 않음	동의하지 않음	동의함	매우 동의함
C1 성인 자녀들이나 가족(친지)들은 나에게 유방암 검진을 권해왔다.	1	2	3	4
C2 성인 자녀들이나 가족(친지)들은 내가 유방암 증상이나 메모그램과 같은 건강 관련 문제나 걱정에 대해 이야기를 하면 잘 들어준다.	1	2	3	4
C3 성인 자녀들이나 가족(친지)들은 내가 메모그램과 같은 건강 검진을 예약하고 받을 수 있도록 도와준다.	1	2	3	4
C4 성인 자녀들이나 가족(친지)들은 나에게 유방암과 같은 건강 문제에 관한 조언이나 정보를 준다.	1	2	3	4

PART IV: 유방암 및 유방암 검진에 관한 지식

유방암 및 유방암 검진 관한 지식에 대해 알아보고자 합니다. 각 진술에 대해 *'참' '거짓' '잘 모르겠음'* 중 **하나에만 체크 마크 (V)**를 해주세요.

문항	참	거짓	모르겠음
D1 유방이 큰 여성들은 유방이 작은 여성들보다 유방암에 걸릴 가능성이 크다.			
D2 유방의 멍울은 실제로 나타나는 유일한 유방암 증상이다.			
D3 가슴에 생긴 멍, 혹, 또는 상처가 유방암을 유발할 수 있다.			
D4 유방절제술의 부위가 넓을수록 치유 가능성이 높아진다.			
D5 유방암의 유일한 치료법은 유방절제술 또는 유방제거이다.			
D6 유방암에 걸린 여성의 경우, 유방암 재발 가능성이 높다.			
D7 30 세 이전에 첫 출산 경험이 있는 여성은 30 세 이후에 첫 출산을 한 여성보다 유방암에 걸릴 가능성이 낮다.			

	문항	참	거짓	모르겠음
D8	유방암이 5 년 이상 재발하지 않을 경우, 완치되었다고 볼 수 있다.			
D9	50 세 이상 여성의 경우, 젊은 여성 보다 유방암에 걸릴 가능성이 높다.			
D10	유방의 치밀도가 높은 여성의 경우, 유방의 치밀도 낮은 여성보다 유방암에 걸릴 가능성이 4-5 배 정도 높다. *유방의 치밀도: 유방을 구성하고 있는 조직 중 유즙(젖)을 만들어 내는 유선 조직의 양이 많고 지방 조직이 적은 경우 치밀도가 높다고 이야기합니다.			
D11	메모그램은 항상 정확하게 유방암을 진단할 것이다.			
D12	메모그램은 손으로 만져지지 않는 유방 내 멍울까지 발견할 수 있다.			
D13	정기적으로 메모그램을 받는 여성은 자가검진이나 임상 진찰 (자가 검진과 유사하나 의료진에 의해서 행해짐)을 받을 필요가 없다.			
D14	미국 암 협회에서는 45 세에서 54 세 사이의 여성들에게 매년 메모그램을 받을 것을 권장한다.			
D15	미국 암 협회에서는 55 세 이상의 여성들에게 개인의 선택에 따라 2 년에 한 번 또는 매년 메모그램을 받을 것을 권장한다.			
D16	미국의 예방 의학팀 (United States Preventive Servcies Task Force)은 50 세에서 74 세 사이의 여성들에게 2 년에 한 번 메모그램을 받을 것을 권장한다.			
D17	메모그램 결과 중 허위음성판정은 유방의 치밀도가 높을수록 많이 나타난다. * 허위음성판정: 엑스레이에서는 암이 보이지 않아 정상처럼 보이지만 실제 암이 존재하는 경우를 의미합니다.			

다음의 두 질문에 대해 귀하의 대답을 하나의 숫자에만 동그라미로 표시해주세요.

D18. 대부분의 유방 내 멍울은 _____ 의해서 발견된다.

여성들 스스로……1
의사들 ……2
메모그램 ……3
모르겠음 ……4

D19. 정기적 메모그램이 유방암 치료에 있어 얼마나 큰 차이를 가지고 오는가?

매우 큰 차이 ……1
약간의 차이 ……2
아주 조금 혹은 별 차이……3
모르겠음 ……4

PART V: 유방암 검진 관련 경험

메모그램 검진과 관련된 귀하의 경험에 대해 알아보고자 합니다. 각 질문에 귀하의 대답을 **하나의 숫자에만** 동그라미로 표시해주세요.

E1. 이 연구에 참여하기 전, 메모그램에 대해 들어본 적이 있습니까?

예……1
아니오……2

E2. 이 연구에 참여하기 전, 메모그램이 어떻게 진행되는지 알고 계셨습니까?

예 ……1
아니오 ……2

E3. 메모그램을 받아보신 적이 있습니까?

예……1 [E3-1 문항으로 가세요]
아니오……2 [E4 문항으로 가세요]

"예"라고 응답한 경우"

E3-1. 몇 세에 처음으로 메모그램을 받으셨습니까? _____세

E3-2. 어떤 계기로 처음 메모그램을 받게 되셨습니까?

[_____]

E3-3. 어디에서 첫 번째 메모그램을 받으셨습니까?

한국 1
미국 2
기타 3
[구체적으로: _____]

E3-4. 첫 번째 검사 이후, 얼마나 자주 메모그램을 받고 계십니까?

첫 번째 이후, 검사를 받지 않음 1
매년.....2
2 년에 한 번 3
3 년에 한 번 4
기타.....5
[구체적으로: _____]

E3-5. 살면서 메모그램을 총 몇 번 정도 받아 보셨습니까? _____회

E3-6. 가장 최근에 언제 메모그램을 받으셨습니까? _____년

E3-7. 미국으로 이민 온 이후, 한국에서 메모그램을 받아본적이 있습니까?

예 .....1 [E3-7-1 문항으로 가세요]
아니오.....2

E3-7-1. 한국에서 메모그램을 받게 된 계기는 무엇입니까?

[_____]

E3-8. 전반적으로 귀하의 메모그램 검사 경험이 어떠셨는지 체크해주시기 바랍니다.

매우 부정적 1
부정적 2
긍정적 3
매우 긍정적 4

E3-9. 메모그램을 받은 이후, 사후 검사 (예를 들어, 메모그램 재촬영, 초음파, 조직검사)를 받아보신적이 있습니까?

예.....1
[구체적으로: _____]
아니오.....2

E4. 향후에 메모그램을 받으실 의향이 있으신지에 대해 알아보고자 합니다. 메모그램을 받아 본 경험이 있으시면, E4-1 의 문항에 응답해주시기 바랍니다. 그렇지 않으면, E4-2 의 문항에 응답해주시기 바랍니다.

E4-1: 나는 메모그램을 받아 본적이 있다. 그리고 나는	더 이상 받을 계획이 없다……1 1 년 이내에 받을 계획이 있다……2 2 년 이내에 받을 계획이 있다……3 3 년 이내에 받을 계획이 있다……4
E4-2: 나는 메모그램을 받아본 적이 없다. 그리고 나는	여전히 받을 계획이 없다……1 1 년 이내에 받을 계획이 있다……2 2 년 이내에 받을 계획이 있다……3 3 년 이내에 받을 계획이 있다……4

E5. 가족, 친구, 그리고 주변 이웃들의 메모그램 경험에 대해 들어본 적이 있습니까?

예 ……1 [E5-1 문항으로 가세요]

아니오……2 [E6 문항으로 가세요]

E5-1. 전반적으로 메모그램 경험에 대해 어떻게 이야기했습니까?

매우 부정적 1

부정적 2

긍정적 3

매우 긍정적.....4

E5-2. 메모그램 경험담이 귀하의 메모그램 검사 여부를 결정하는데 도움이 되었습니까?

예……1

아니오……2

E6. 무료 또는 저가로 메모그램을 받을 수 있는 서비스에 대해 알고 계십니까?

(예를 들어, Every Women Counts)

예……1 [E6-1 문항으로 가세요]

아니오……2

E6-1. 무료 또는 저가의 메모그램 서비스를 이용해 보신 적이 있습니까?

예……1

아니오……2

PART VI: 메모그램 검사 관련 장애요인

다음 문항들은 메모그램을 받는데 있어 장애가 되는 요인에 관한 것 입니다. 각 진술에 대해 어느 정도 동의하시는지 **하나의 숫자에만** 동그라미로 표시해주세요.

	문항	매우 동의하지 않음	동의하지 않음	동의함	매우 동의함
F1	메모그램을 통해 잘못된 것을 발견하게 될까봐 검사를 받는 것이 두렵다.	1	2	3	4
F2	메모그램이 어떻게 진행되는지 알지 못하기 때문에 검사를 받는것이 두렵다.	1	2	3	4
F3	메모그램을 받기 위해 무엇을 해야 하는지 모른다.	1	2	3	4
F4	메모그램을 받는 것이 매우 쑥쓰럽다.	1	2	3	4
F5	메모그램을 받는데 너무 많은 시간이 소요된다.	1	2	3	4
F6	메모그램은 심한 통증을 유발한다.	1	2	3	4
F7	메모그램을 하는 사람들은 여성들에게 무례하다.	1	2	3	4
F8	메모그램로 인해 불필요한 방사선에 노출된다.	1	2	3	4
F9	메모그램 예약하는 것을 잊어버린다.	1	2	3	4
F10	메모그램을 받는 것보다 더 중요한 일들이 많다.	1	2	3	4
F11	나이가 너무 많아서 정기적으로 메모그램을 받을 필요가 없다.	1	2	3	4
F12	의료진과 영어로 의사소통이 잘되지 않을까봐 두렵다.	1	2	3	4
F13	나의 재정 상황 또는 보험 때문에 메모그램을 받을 수 없다.	1	2	3	4
F14	병원에 갈 만한 마땅한 교통편이 없어서 메모그램을 받는게 어렵다.	1	2	3	4

F15. 위에서 기술된 상황 이외에 메모그램 검사를 방해하는 요인이 있다면 아래에 써 주시기 바랍니다.

PART VII: 자기효능감과 메모그램

메모그램 검사를 받는데 있어 귀하가 어느 정도 자신이 있으신지에 대해 알아보고자 합니다. 각 진술에 대해 어느 정도 자신이 있으신지 **하나의 숫자에만** 동그라미로 표시해주세요.

문항		자신없음	약간 자신없음	약간 자신있음	자신있음
G1	메모그램을 받기 위해 교통편을 구할 수 있다.	1	2	3	4
G2	메모그램을 받기 위해 다른 일정을 조정할 수 있다.	1	2	3	4
G3	메모그램 센터 사람들에게 내가 우려하는 점에 대해이야기 할 수 있다.	1	2	3	4
G4	걱정이 되더라도 메모그램을 받을 수 있다.	1	2	3	4
G5	어떤 결과가 나올지 몰라도 메모그램을 받을 수 있다.	1	2	3	4
G6	메모그램 비용을 지불할 방법을 찾을 수 있다.	1	2	3	4
G7	메모그램을 받기 위해 병원에 예약할 수 있다.	1	2	3	4
G8	정말 메모그램이 받고 싶다면 나는 검사를 받을 수 있다고 확신한다.	1	2	3	4
G9	메모그램을 어떻게 받는지 안다.	1	2	3	4
G10	메모그램을 받을 수 있는 곳을 찾을 수 있다.	1	2	3	4

PART VIII: 암 경력

다음은 귀하 또는 귀하 가족들의 암 경험에 관련된 것입니다. 각 문항에 대해 귀하의 상황을 적절하게 표현하는 보기의 숫자에 동그라미로 표시해주시고, 서술을 요구하는 곳의 문항의 경우 답을 써주시기 바랍니다.

H1. 귀하께서는 암 진단을 받은 적이 있습니까?

예……..……1 [어떤 종류의 암입니까? _____]

아니오 ……2

H2. 귀하께서는 과거에 스스로 유방암 증상을 발견하신 적이 있습니까?

예……..……1 [H2-1 문항으로 가시오]

아니오 ……2 [H3 문항으로 가시오]

H2-1. 어떤 증상이었습니까? (해당되는 것에 모두 동그라미를 쳐주세요)

유방 또는 유두 통증 ……1

유두 또는 유방의 홍조, 각질, 또는 비대 ……2

피부 염증 또는 오목하게 패임 (보조개처럼) ……3

유두 분비물 ……4

유두의 함몰 ……5

양쪽 또는 한쪽 유방의 팽창(부어오름) … ……6

기타 ……7

[구체적으로: _____]

H2-2. 스스로 유방암 증상을 발견한 후, 의료진을 만난적이 있습니까?

예 ……1 [H2-2-1 문항으로 가시오]

아니오 ……2 [H3 문항으로 가시오]

H2-2-1. 어떤 의료진이었습니까?

의사……1

간호사……2

기타……3

[구체적으로: _____]

H3. 귀하의 가족 (부모, 조부모, 형제 자매 혹은 가까운 친척) 중 암 진단을 받았던 분이 계십니까?

예 ……1

[누가 암 진단을 받았고, 어떤 종류의 암이었습니까? _____]

아니오……2

모르겠음/확실치 않음 ……3

PART IX: 건강관리 접근

다음은 귀하의 의료 서비스 접근성에 관한 것입니다. 각 문항에 대해 귀하의 상황을 적절하게 표현하는 보기의 숫자에 동그라미로 표시해주시고, 서술을 요구하는 곳의 문항의 경우 답을 써주시기 바랍니다.

I1. 귀하는 건강 보험을 가지고 있습니까?

예……1 [I1-1 문항으로 가세요]
아니오……2 [I1-6 문항으로가세요]

I1. 문항에서 **"예"라고 응답한 경우**

I1-1. 어떤 종류의 건강보험을 가지고 있습니까? (해당되는 것에 모두 동그라미를 쳐주세요)

메디케어……1
메디칼……2
직장보험……3
개인보험……4
기타……5
[구체적으로: _____]

I1-2. 건강 보험에 가입한지 얼마나 되셨습니까? _____ 년

I1-3. 귀하가 가지고 계신 보험으로 어떤 종류의 서비스가 보장(또는 포함) 되는지 알고 계십니까?

예……1
아니오……2

I1-4. 귀하는 의료보험료를 지불하는 것이 부담이 됩니까?

예 ……1
아니오 ……2

I1-5. 귀하는 의료서비스 이용 시 지불해야 하는 본인부담금이 부담이 됩니까?

예 ……1
아니오 ……2

I1-6. 귀하는 의료보험이 없다고 응답하셨습니다. 그렇다면, 건강상의 문제가 발생했을 때 어떻게 대처하십니까? (예, 무료로 의료 서비스가 제공되는 클리닉 방문)

I2. 귀하는 정기 검진을 받으십니까?

예 ……1 [I2-1 문항으로가세요]
아니오 ……2 [I3 문항으로 가세요]

I2-1. 귀하는 얼마나 자주 정기 검진을 받으십니까?

6 개월에 한 번 1
매년 2
2 년에 한 번 3
기타 4
[구체적으로: _____]

I3. 귀하는 작년에 의료진을 몇 번 방문하셨습니까? (정기 검진 포함)

없음 1
1 회 2
2 회 3
3 회 4
4 회 5
5 회 6
기타 ……7 [몇 번입니까? _____ 회]

I4. 귀하는 전담 의료진 (예를 들어 의사나 간호사 등과 같이 귀하의 지속적인 (건강) 관리를 위해 만나는 사람)이 있습니까?

예 ……1 [I4-1 문항으로 가세요]
아니오……2 [I5 문항으로 가세요]

"예"라고 응답한 경우

I4-1. 전담 의료진은 어느 민족입니까?

한국인 ……1 [14-1-2 문항으로 가세요]
기타……2
[구체적으로(예를 들어, 백인): _____] [14-1-1 문항으로 가세요]

I4-1-1. 전담 의료진과는 어떻게 소통하십니까?

스스로 ……1
통역사의 도움……2
가족의 도움……3
친구의 도움……4
기타 ……5
[구체적으로: _____]

I4-1-2. 전담 의료진의 성별은 무엇입니까?

여성..... 1
남성..... 2

I4-1-3. 전담 의료진이 메모그램을 권유합니까?

예……1
아니오……2
모르겠음……3

I4-1-4. 전담 의료진에게 메모그램에 대해 물어볼 자신이 있습니까?

예 1
아니오..... 2

I5. 귀하는 전담 의료진이 없다고 응답하셨습니다. 건강상의 문제가 발생했을 때/건강 관리가 필요할 때 누구와 이야기 하십니까? (예를 들어, 남편, 자녀 등)

PART X: 건강관련정보 접근

다음은 귀하의 건강 관련 정보 접근에 관한 것입니다. 각 문항에 대해 귀하의 상황을 적절하게 표현하는 보기의 하나 또는 그 이상의 숫자에 동그라미로 표시해주시기 바랍니다.

J1. 귀하는 주로 어디에서 건강 관련 정보를 얻습니까? [3 개까지 선택 가능]

친구/가족 ……1
의료진 ……2
한국어로 된브로셔나 팜플렛 ……3
한국어 신문과 잡지 ……4
한국어 라디오와 티비방송 ……5
한국어로 된 인터넷 사이트……6

영어 신문과 잡지 7
영어로 된 브로셔나 팜플렛.....8
영어 라디오와 티비방송 9
영어로 된 인터넷 사이트.....10
기타.....11
[구체적으로: _____]

J2. 귀하께서 얻은 정보를 어느 정도 신뢰하십니까?

전혀 신뢰하지 않음 1
거의 신뢰하지 않음 2
약간 신뢰함 3
매우 신뢰함 4

J3. 귀하께는 필요한 건강 또는 의료 관련 정보나 조언을 얻는게 얼마나 어렵습니까?

건강 정보를 찾지 않음.....1
매우 어려움 2
약간 어려움 3
약간 쉬움 4
매우 쉬움 5

J4. 귀하는 의사, 간호사 또는 다른 의료진이 이야기는 하는 정보를 이해하는게 얼마나 어렵습니까?

전혀 이해하지 못함 1
매우 어려움.....2
약간 어려움.....3
약간 쉬움.....4
매우 쉬움.....5

J5. 건강에 관련된 정보는 인터넷, 신문 기사, 잡지, 의사 오피스 그리고 병원에 배치된 책자에서 찾을 수 있습니다. 일반적으로, 문서로 제공되는 정보를 이해하는게 얼마나 어렵습니까?

문서로 된 건강 정보에 관심을 기울이지 않는다 1
매우 어려움.....2
약간 어려움.....3
약간 쉬움.....4
매우 쉬움.....5

PART XI: 사회인구학적 배경정보

마지막으로 귀하의 사회인구학적 배경에 대해 여쭈어보고자 합니다. 각 문항에 대해 귀하의 상황을 적절하게 표현하는 보기의 하나의 숫자에 동그라미로 표시해주시고, 서술을 요구하는 곳의 문항의 경우 답을 써주시기 바랍니다.

K1. 귀하의 생년월은 어떻게 되십니까? _____년 _____월

K2. 미국에서 얼마나 거주하셨습니까? _____년

K2-1. 처음 미국으로 이민 왔을 당시의 나이는 몇 세였습니까? _____세

K3. 귀하의 결혼 상태는 무엇입니까?

독신.....1
이혼.....2
사별.....3
결혼.....4
동거.....5

K4. 귀하는 누구와 살고 계십니까?

혼자 산다 1
배우자와 산다 2
배우자와 자녀들과 같이 산다 3
배우자 없이 자녀들과 함께 산다 4
친척들과 같이 산다 5
다른 사람과 같이 산다.....6
[구체적으로: _____]

K5. 함께 사는 가족과 친구의 수를 적어주시기 바랍니다. _____ 명

K6. 귀하가 돌봐야 하는 가족이나 친구의 수를 적어주시기 바랍니다. _____ 명

* '돌보다' 의미의 예: 돌보거나 (personal care) 제공하거나 집안일을 도와주는 것

K7. 주중에 평균적으로 가족이나 친구를 돌보는데 몇 시간을 사용하십니까?

월요일	화요일	수요일	목요일	금요일

K8. 전반적으로 귀하의 영어 말하기 능력은 어떠합니까?

영어로 말할 수 없음 1
좋지 않음.....2
보통 3
좋음.....4
매우 좋음 5
훌륭함 6

K9. 전반적으로 귀하의 영어 듣기 능력은 어떠합니까?

영어를 이해하지 못함 1
좋지 않음.....2
보통.....3
좋음.....4
매우 좋음.....5
훌륭함 6

K10. 전반적으로 귀하의 영어 읽기 능력은 어떠합니까?

영어를 읽을 수 없음 1
좋지 않음.....2
보통.....3
좋음.....4
매우 좋음.....5
훌륭함 6

K11. 귀하의 최종학력은 무엇입니까?

초등학교 졸업 ……1
중학교 졸업 ……2
고등학교 졸업 또는 비슷한 수준의 학력 취득 ……3
2 년제 또는 4 년제 대학 졸업 ……4
대학원 졸업 ……5

K12. 최종학력을 마친 곳은 어디입니까?

한국 ……1
미국 ……2
기타 ……3
[구체적으로: _____]

K13. 귀하의 고용상태는 어떠합니까?

풀타임 (고용) 1
풀타임 (자영업) 2
파트타임 (고용) 3
파트타임 (자영업) 4
실업상태 5
은퇴 6
장애(가 있어 일을 할 수 없음) 7
기타 8
[구체적으로: _____]

K14. 귀하 가정의 연간 수입은 어떻게 되십니까 (배우자 수입 포함)?

$25,000 미만 1
$25,000 - $49,999 2
$50,000 - $74,999 3
$75,000 - $94,999 4
$95,000 - $104,999 5
$105,000 - $125,999.....6
$125,000 이상 7

K15. 귀하의 현재 건강상태는 어떠합니까?

나쁨.....1
보통.....2
좋음.....3
매우 좋음.....4
훌륭함 5

K16. 귀하는 만성질환이 있습니까?

예 .....1 [K16-1 문항으로 가세요]
아니오 .....2 [K17 문항으로 가세요]

K16-1. 어떤 종류의 만성질환을 가지고 계십니까? (모두 체크해주시기 바랍니다)

심장질환 1
뇌졸중 2
고혈압 3
당뇨 4
천식 5

관절염 6
골다공증 7
기타 8
[구체적으로: _____]

K17. 본 연구에 대한 정보는 어디에서 얻으셨습니까?

종교기관 (예, 성당, 교회 또는 절) 1
사회복지센터.....2
노인센터.....3
가족.....4
친구.....5
기타.....6
[구체적으로: _____]

K18. 본 설문은 어떻게 작성하셨습니까?

종이 설문지를 이용해 작성 1
아이패드를 사용해 온라인으로 작성 2

이것으로 설문을 다 마치셨습니다. 감사합니다!

본 연구의 두 번째 파트에도 참여하실 의향이 있으신가요? 이는 약 한 시간에서 한 시간 반 가량 동안 녹음되어 진행되는 개인적인 인터뷰입니다. 인터뷰는 귀하의 유방암과 유방암 검진에 대한 견해 및 유방암 검진 경험에 관한 것입니다. 인터뷰에 응해주신 것에 대한 사례로 타겟 기프트 카드($20)가 인터뷰 후에 지급될 것입니다. 인터뷰는 귀하가 원하는 시간과 장소에서 직접 만나서 혹은 전화통화를 통해 한국어로 진행될 것입니다. 인터뷰에 관심이 있으시면, 아래에 연락처를 남겨주시기 바랍니다. 연락처를 남겨주신 분 중 일부 참여자분들께 연구 책임자가 연락드릴것입니다.

성함:
전화번호:
이메일:

Appendix 9: Individual Interview Guide (English)

Individual Interview Guide (1):
Korean immigrant women with no experience with mammography

Breast cancer

1. What comes to your mind when you think about breast cancer?
2. Have you ever known anyone with breast cancer? Tell me about it.
3. Can breast cancer be prevented? How?

Breast cancer screening

1. Have you ever heard breast cancer screening?
    a. When/where did you learn about it? Tell me about it.
2. Tell me anything you have heard about mammography.
3. Do you know anyone who has had a mammogram? Tell me about it.
4. Have you ever considered having a mammography?
    a. If yes, tell me about it. What happen?
    b. If no, why not?
5. How do you take care of your breast health? Tell me about it.
6. What kinds of the challenges you have to get a mammogram?
7. What would be helpful for you to get a mammogram?

Advice

1. What advice would you have for health care professionals (e.g., doctors and nurses) providing mammography to Korean immigrant women? How would they help women to get a mammogram?
2. What advice would you have technicians that Korean immigrant women have better experience (feel more comfortable) during the mammogram?

Individual Interview Guide (2):

Korean immigrant women_ mammogram experience but not maintaining

Breast cancer

1. What comes to your mind when you think about breast cancer?
2. Have you ever known anyone with breast cancer? Tell me about it.
3. Can breast cancer be prevented? How?

Breast cancer screening

1. Tell me anything you have heard about mammography.
2. Do you know anyone who has had a mammogram? Tell me about it.
3. Tell me about your experience with mammography.
    a. Did the mammogram experience influence how you feel about having it? How?
4. Have you ever considered having a mammography again?
    a. If yes, tell me about it.
    b. If no, why not?
5. How do you take care of your breast health?
6. What kinds of the challenges you have to get a mammogram?
7. What would be helpful for you get a mammogram again?

Advice

1. What advice would you have for health care professionals (e.g., doctors and nurses) providing mammography to Korean immigrant women? How would they help women to get a mammogram?
2. What advice would you have technicians that Korean immigrant women have better experience (feel more comfortable) during the mammogram?

Individual Interview Guide (3):
Korean immigrant women _ regular screeners

Breast cancer

1. What comes to your mind when you think about breast cancer?
2. Have you ever known anyone with breast cancer? Tell me about it.
3. Can breast cancer be prevented? How?

Breast cancer screening

1. Tell me anything you have heard about mammography.
2. Tell me about your experience with mammography.
3. Do you know anyone who has had a mammogram? Tell me about it.
4. What are the challenges to get a mammogram?
    a. How have you overcome the challenges to maintain regular screening?
5. What have helped you get a mammogram?

Advice

1. What advice would you have for health care professionals (e.g., doctors and nurses) providing mammography to Korean immigrant women? How would they help women to get a mammogram?
2. What advice would you have technicians that Korean immigrant women have better experience (feel more comfortable) during the mammogram?

Potential verbal prompts:

- Tell me more?
- What were you feeling?
- Give an example?
- What was important to you about that experience?
- What do you mean?
- I don't understand.
- Yes…
- Why?

Non-verbal prompts

- Nodding
- Smiling
- Sitting close to the participant